

Comprehensive Site Health and Safety Program

Libby Asbestos Project

Contract No. DTRT57-05-D-30109

Task Order No. T0008

DCN: DC2616.008.202.HANDS-2161.00

Prepared for:

**U. S. Department of Transportation
Research and Special Programs Administration**

**John A. Volpe National Transportation Systems Center
Environmental Engineering Division, DTS-33
55 Broadway, Kendall Square
Cambridge, MA 02142**



December 2006

Prepared by:



One Cambridge Place
50 Hampshire Street
Cambridge, MA 02139

Revision 5

1074296



Libby Asbestos Project

Comprehensive Site Health and Safety Program

Paul Peronard
Team Leader
U. S. Environmental Protection Agency

Date

Mike Cirian
Field Leader
U. S. Environmental Protection Agency

Date

Steve Losier
Project Manager
John A. Volpe National Transportation Systems Center

Date

Courtney Zamora
Field Manager
John A. Volpe National Transportation Systems Center

Date

Paul Lammers
Site Manager
CDM Federal Programs Corporation

Date

Charles J. Myers, CIH, CHMM
Corporate Health and Safety Manager
CDM Federal Programs Corporation

Date

Shawn T. Oliveira, CSP
Site Health and Safety Manager
CDM Federal Programs Corporation

Date

Document Revision Log

<i>Revision</i>	<i>Date</i>	<i>Changes</i>
0	April 2001	--
1	May 2001	Organizational clarifications
2	May 2002	Organizational clarifications
3	May 2003	Organizational clarifications
4	April 2006	General clarifications
5	December 2006	General clarifications

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Abbreviations and Acronyms

A&E	architectural and engineering firm
ACM	asbestos-containing material
AHA	activity hazard analysis
ANSI	American National Standards Institute
APR	air purifying respirator
BZ	breathing zone
CDM	CDM Federal Programs Corporation
CDM H&S	CDM health and safety
CFR	Code of Federal Regulations
CIH	certified industrial hygienist
CSHASP	comprehensive site health and safety program
CSP	certified safety professional
dB	decibels
DOT	U. S. Department of Transportation
EPA	U. S. Environmental Protection Agency
FEV	forced expiratory volume
FVC	forced vital capacity
GFCI	ground fault circuit interrupter
H&S	health and safety
HSM	health and safety manager
HVAC	heating, ventilation, and air conditioning
IDLH	immediately dangerous to life or health
LO/TO	lockout/tagout
LV	Libby vermiculite
MSA	mine safety appliance
MSDS	material safety data sheet
MSHA	Mine Safety and Health and Administration
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PAPR	powered air purifying respirator
PCM	phase contrast microscopy
PEL	permissible exposure limit
PF	protection factor
PPE	personal protective equipment
RPM	remedial project manager
SAP	sampling and analysis plan
SCBA	self-contained breathing apparatus
SHSO	site health and safety officer
SSHASP	site-specific health and safety plan
SSVR	small scale vermiculite removal
STEL	short-term exposure limit
TEM	transmission electron microscopy
TLV	threshold limit value
TWA	time weighted average
VCI	vermiculite-containing insulation
Volpe Center	John A. Volpe National Transportation Systems Center
WBGT	wet-bulb globe temperature
°C	degrees Celsius
°F	degrees Fahrenheit

Section 1

Introduction

This Comprehensive Site Health and Safety Program (CSHASP) was prepared by CDM Federal Programs Corporation (CDM) for the John A. Volpe National Transportation Systems Center (Volpe Center) of the U. S. Department of Transportation, Contract No. DTRT57-05-D-30109, Libby Asbestos Project, Libby, Montana. This CSHASP is based on all available site-specific data. In addition to other regulatory requirements, all work will be performed in compliance with regulations set forth by the U. S. Occupational Safety and Health Administration's (OSHA) Title 29 of the *Code of Federal Regulations* (CFR), Parts 1910 and 1926, and U. S. Environmental Protection Agency's (EPA's) Hazardous Waste Requirements (40 CFR 260-270). The contents of this CSHASP are subject to review and revision as new information becomes available.

1.1 Purpose of the Comprehensive Site Health and Safety Program

The CSHASP is designed to provide a system to identify, evaluate, and correct health and safety hazards and to ensure the protection of worker and public safety during all activities performed under the Volpe contract. To do so, the CSHASP will:

- Present written policies and guidelines mandating regulatory compliance and environmental, health, and safety protection for removal contractor workers employed under the Volpe contract
- Coordinate the overall health and safety effort during construction
- Present health and safety expectations, roles, and responsibilities required of removal contractors addressing the entire scope of operations performed under the Volpe contract
- Establish minimum site documentation requirements and define the lines of communication between EPA, Volpe, architectural and engineering firm (A&E) health and safety (A&E H&S), and removal contractor management
- Establish minimum training requirements for removal contractor personnel working under the Volpe contract
- Educate key removal contractor staff on the standards and guidelines to ensure a full understanding of the implications and liability of noncompliance

1.2 Responsibilities of the Comprehensive Site Health and Safety Program

The requirements established by this CSHASP are mandatory and apply to all removal contractors, including their site subcontractor personnel, involved in implementing Libby Asbestos Project work at regulated site areas during active field operations. The Volpe Center is responsible for ensuring that all removal contractor personnel

understand the contents of the CSHASP before the commencement of site work. The Volpe Center will ensure that a copy of this plan is provided to any authorized removal contractor personnel who must enter regulated site work areas. Such personnel are required to sign the CSHASP as an acknowledgment of agreement, acceptance, and understanding of the contents.

1.3 Revision of the Comprehensive Site Health and Safety Program

Changes in the scope of work operations, and/or changing or unanticipated site conditions may require modification and approval of the CSHASP to maintain field safety in compliance with contract requirements and OSHA regulations. Work operations affected by the revisions will not proceed unless specifically authorized by the Volpe Center site manager. Only the Volpe Center site manager may authorize operations to continue while changes to the CSHASP are under review by the contracting agency.

1.4 Implementation of the Comprehensive Site Health and Safety Program

Implementation of the CSHASP will be performed by the following means:

- Each removal contractor will be provided a copy of the CSHASP for incorporation into their site-specific health and safety plans (SSHASPs).
- The removal contractors will submit SSHASPs, which reference and incorporate the CSHASP as appropriate, describing site-specific procedures as well as means and methods used to perform removal activities under the Volpe Contract. A copy of the SSHASPs will be maintained at each site throughout the duration of all removal and restoration activities.
- The removal contractor will designate an adequate number of appropriately trained competent people as defined in OSHA Standards 29 CFR 1926.32 (f). This definition states that a competent person is “one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.” Refer to Sections 2 and 4 for further details regarding responsibilities and designation of competent persons.
- The removal contractor will perform an activity hazard analysis (AHA) (see Section 9.2 for details) for all removal activities performed under the Volpe contract. The removal contractor will perform regular and frequent inspections of the work areas to ensure compliance with the requirements of the CSHASP and any applicable SSHASP.
- A&E H&S and removal oversight will perform regular and frequent inspections of the work areas to ensure that the removal contractor is performing removal activities in compliance with requirements defined within the CSHASP and applicable SSHASP.

- Any violations or potential hazards identified during routine inspections will be discussed with A&E H&S and the removal contractor's site health and safety officer (SHSO), site supervisor, or competent person and shall be corrected as soon as possible. If a violation or potential hazard is identified that presents an immediate danger to worker or public safety, site activities may be stopped until appropriate corrective actions can be implemented by the removal contractor.
- Ongoing daily safety tailgate meetings will be conducted by the removal contractor. Removal contractor site personnel will be informed of any modifications to the CSHASP during the meetings or when site conditions or risks change. Documentation of the daily tailgate safety meetings must be maintained onsite and available for inspection by the A&E H&S team.

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Section 2

Health and Safety Project Organization

2.1 Organization and Safety Responsibilities

Based on the scope of work, the Libby Asbestos Project Field Health and Safety Team will consist of the EPA site remedial project manager (RPM), Volpe Center site manager, A&E H&S manager (HSM), A&E certified industrial hygienist/certified safety professional (CIH/CSP), A&E construction manager, A&E SHSO, removal contractor project manager, removal contractor SHSO, removal contractor site supervisors, removal contractor competent persons, and field personnel.

The health and safety responsibilities of the project team are outlined in the following sections.

2.2 Health and Safety Team

2.2.1 EPA Site Remedial Project Manager

The health and safety responsibilities of the EPA site RPM include, but are not limited to:

- Ensuring overall project compliance with applicable EPA, OSHA, and project requirements to protect worker and public safety
- Attending the biweekly H&S meeting to assess field operations, personal air monitoring results, communications between A&E and the removal contractors, observed site violations, and implementation of recommended corrective actions
- Ensuring that Lincoln County Asbestos Landfill operations are conducted in accordance with applicable OSHA, EPA, and state requirements
- RPM will be available to listen to project and safety related concerns from both the workforce and the community at large

2.2.2 Volpe Center Site Manager

The health and safety responsibilities of the Volpe Center site manager include, but are not limited to:

- Ensuring that the CSHASP and associated SSHASPs are approved by the contracting agency before commencement of operations, and onsite during all project related activities
- Communicating with the A&E construction manager and HSM to ensure that A&E H&S oversight activities are performed according to contract requirements and satisfy the reasonable care standard with respect to protection of public and worker safety

- Attending the biweekly H&S meeting to assess field operations, personal air monitoring results, communications between A&E and the removal contractors, observed site violations, and implementation of recommended corrective actions
- Ensuring that any changes in conditions, potential hazards, or other information critical to safe job performance is communicated to all site personnel
- Enforcing overall removal contractor compliance with applicable federal, OSHA, and project requirements
- Reviewing A&E H&S, A&E removal oversight, and removal contractor site inspection results and recommended corrective actions as these items relate to safety and compliance

The Volpe Center has the authority to shut down site operations where conditions warrant such actions.

2.2.3 A&E Health and Safety Manager

The health and safety responsibilities of the A&E HSM include, but are not limited to:

- Providing oversight and enforcing the CSHASP
- Reviewing the CSHASP before its submittal, affixing a signature and date to the document
- Evaluating air monitoring data and recommending any necessary changes to engineering controls, work practices, and PPE
- Coordinating onsite training
- Providing onsite consultation, as needed
- Coordinating any modifications to the CSHASP with the Volpe Center site manager, A&E CIH/CSP, A&E construction manager, A&E SHSO, and the removal contractor project manager
- Attending the biweekly H&S meeting to assess field operations, personal air monitoring results, communications between A&E and the removal contractors, observed site violations, and implementation of recommended corrective actions
- Reviewing site accident investigations and reporting
- Providing continued support for any upgrading/downgrading of the level of personal protection

2.2.4 A&E Certified Industrial Hygienist/Certified Safety Professional

The health and safety responsibilities of the A&E CIH/CSP include, but are not limited to:

- Overseeing the quarterly site inspection review process to ensure project compliance with applicable federal, state, and project requirements
- Reviewing personal air monitoring results to ensure that appropriate respiratory protection is maintained during all project related activities
- Preparing a quarterly H&S report, based on inspections and a review of removal processes, that summarizes the quarterly inspection observations as well as any pertinent hazards identified
- Communicating with the Volpe Center site manager, A&E HSM, A&E construction manager, and removal contractor project manager to identify and correct potential hazards
- Providing onsite consultation, as needed
- Providing 24-hour availability for consultation with A&E staff and the removal contractor SHSO during onsite emergencies

2.2.5 A&E Construction Manager

The health and safety responsibilities of the A&E construction manager include, but are not limited to:

- Monitoring overall safety performance of field personnel in coordination with the A&E H&S manager, A&E CIH/CSP, A&E SHSO, and the removal contractor project manager
- Correcting any work practices and/or conditions that may result in injury and/or exposure to hazards
- Immediately stopping Volpe Center (including subcontractor) operations in the event of an emergency or serious hazard
- Attending the biweekly H&S meeting to assess field operations, personal air monitoring results, communications between A&E and the removal contractors, observed site violations, and implementation of recommended corrective actions

2.2.6 A&E Site Health and Safety Officer

The health and safety responsibilities of the A&E SHSO include, but are not limited to:

- Supervising onsite implementation and enforcement of the CSHASP
- Being on site for the duration of field activities to fulfill health and safety related duties

- Ensuring site compliance with federal, state and OSHA safety and health regulations and all requirements of the CSHASP including, but not limited to, activity hazard analyses, air monitoring, use of PPE, decontamination, site control, procedures used to minimize hazards, safe use of engineering controls, the emergency response plan, the spill containment program, and documentation of the health and safety inspection results
- Reviewing AHA forms completed by the Removal Contractor's SHSO prior to start of removal activities.
- Conducting onsite training as necessary
- Stopping work if unacceptable health or safety conditions exist, and taking necessary actions to reestablish and maintain safe working conditions
- Serving as a member of the quality control staff on matters relating to health and safety
- Attending the biweekly H&S meeting, when necessary, to assess field operations, personal air monitoring results, communications between A&E and the removal contractors, observed site violations, and implementation of recommended corrective actions
- Conducting site accident investigations and preparing accident reports as necessary
- Documenting health and safety findings during quality control inspections
- Recommending corrective actions for identified health and safety deficiencies and performing follow-up inspections to ensure that corrective actions have been properly implemented

2.2.7 Removal Contractor Project Manager

The health and safety responsibilities of the removal contractor project manager include, but are not limited to:

- Ensuring that an SSHASP covering the scope of all activities performed by the removal contractor under the Volpe contract is submitted to Volpe and approved before the start of site work activities
- Ensuring that all removal contractor personnel have read and acknowledged by signature that they understand the contents of the CSHASP and applicable SSHASP
- Ensuring that all removal contractor work activities are performed in compliance with requirements set forth by OSHA Title 29 of the CFR, Parts 1910 and 1926, and EPA's Hazardous Waste Requirements (40 CFR 260-270)
- Ensuring that all removal contractor personnel have received appropriate training that addresses their anticipated work activities

- Coordinating with the Volpe Center site manager, A&E construction manager, A&E HSM, and A&E SHSO to ensure that all efforts are made to identify potential hazards and that appropriate controls are implemented for worker and public safety
- Designating a qualified removal contractor SHSO to oversee implementation of the CSHASP and SSHASP
- Selecting and identifying competent persons for project activities (see Section 4.5.1 for details).
- Reporting any observed unsafe act and/or condition at, or affecting, the work site to A&E H&S
- Coordinating and reviewing all removal contractor site accident investigations and reporting
- Attending the biweekly H&S meeting to assess field operations, personal air monitoring results, communications between A&E and the removal contractors, observed site violations, and implementation of recommended corrective actions

In addition, any official removal contractor visitor who seeks entry into work areas will present documentation of health and safety training in compliance with OSHA Standards 29 CFR 1910.120, medical surveillance examination and certification, and respirator fit testing. A visitor log will be maintained onsite by the removal contractor.

2.2.8 Removal Contractor Site Health & Safety Officer

The health and safety responsibilities of the removal contractor SHSO include, but are not limited to:

- Being onsite at all times when project related activities are performed
- Performing regular and frequent site inspections to ensure that work areas are setup according to OSHA and project requirements (these inspections are to be documented and available to A&E H&S upon request)
- Inspecting demolition, bulk removal, interior cleaning, detail cleaning, exterior removal, and restoration activities to ensure that they are performed in accordance with project requirements
- Ensuring that all personnel have appropriate training addressing their potential scope of activities
- Attending the biweekly H&S meeting to assess field operations; personal air monitoring results; communications between Volpe, A&E, and the removal contractors; observed site violations; and implementation of recommended corrective actions

- Performing accident investigation and reporting for all removal contractor accidents, in conjunction with the removal contractor's project manager and A&E H&S
- Reporting any observed unsafe act and/or condition at, or affecting, the work site to A&E H&S
- Ensuring completion of a site-specific AHA form for each removal property

2.2.9 Removal Contractor Site Supervisors

The health and safety responsibilities of the removal contractor site supervisors include, but are not limited to:

- Ensuring that site personnel have read, signed, and implemented the CSHASP and SSHASP
- Performing frequent and regular inspections of all work areas to ensure that all applicable OSHA and project requirements have been satisfied
- Correcting any site work practices and/or conditions that may result in injury and/or exposure to hazards
- Coordinating with A&E H&S and the removal contractor SHSO on accident investigations

2.2.10 Removal Contractor Competent Persons

The health and safety responsibilities of the removal contractor competent persons (Section 4.5.1) include, but are not limited to:

- Performing frequent and regular inspections of all designated work areas and activities to ensure that all OSHA and project requirements have been satisfied
- Correcting any work practices and/or conditions that may result in injury and/or exposure to hazards
- Coordinating with A&E H&S and the removal contractor SHSO on accident investigations
- Ensuring completion of a site-specific AHA form for each removal property

2.2.11 Removal Contractor Field Personnel

The health and safety responsibilities of removal contractor field personnel include, but are not limited to:

- Following the guidelines, rules, and procedures set forth in this document
- Acting in a responsible and cautious manner to prevent accident, injury and/or exposure to themselves and their co-workers

- Reporting recognized unsafe conditions and actions to the removal contractor's competent person, site supervisor, or SHSO
- Reporting any and all accidents, injuries, exposures and/or near misses to the removal contractor's competent person, site supervisor, or SHSO
- Attending and participating in Toolbox Safety Meetings conducted during the project
- Following the instructions and directions of the removal contractor's competent person, site supervisor, and SHSO
- Using the personal protective equipment (PPE) provided and specified
- Following all field safety procedures for safe work practices, the buddy system, communication, site control, decontamination, evacuations, and related emergency procedures
- Performing only those tasks they are instructed to perform and they are trained, qualified, and capable of performing
- Reporting to the removal contractor's competent person, site supervisor, or SHSO any condition they believe could affect their safety and/or the safety of co-workers
- Ensuring that no work tasks are performed that deviate from the CSHASP

2.2.12 Authorized Site Visitors

The health and safety responsibilities of authorized site visitors include, but are not limited to:

- Reading and signing the visitor H&S orientation form.
- Receiving specific site hazard and safety instructions from the A&E H&S Manager or SHSO
- Reviewing and complying with the CSHASP and SSHASP
- Using PPE in accordance with CSHASP and SSHASP requirements to enter regulated work areas
- Reporting any observed unsafe act and/or condition at, or affecting, the work site

In addition, any official visitor seeking entry into work areas will present documentation of health and safety training in compliance with applicable OSHA requirements, medical surveillance examination and certification, and respirator fit testing. A visitor log will be maintained onsite by the removal contractor.

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Section 3

Hazard Control Program

A primary health and safety hazard on the Libby Asbestos Project is breathing airborne asbestos fibers. All site personnel will be protected from asbestos exposure through the establishment of engineering controls, proper work practices, and the use of PPE. Site activities may include, but are not limited to: excavation, industrial vacuum operations, demolition, debris removal, and any subsequent restoration activities. The safety hazards associated with these general construction activities - slips, trips, falls, electrical hazards, pinch points, collisions - present a more consistent and potentially greater risk than asbestos exposure.

The purpose of the Libby Asbestos Project Hazard Control Program is to ensure that all current and potential project health and safety hazards are identified, corrected, or controlled in a timely manner. Additionally, the Hazard Control Program will establish safe work procedures that are understood and followed by site removal contractor personnel.

The removal contractor must establish such a Hazard Control Program through which all removal contractor personnel may be advised of potential hazards related to occupational safety. This communication system must include provisions designed to encourage site personnel to inform the removal contractor, A&E H&S, Volpe Center, or EPA RPM of worksite hazards without fear of reprisal.

The Libby Asbestos Project Hazard Control Program is to be built around a systematic evaluation of work site activities and associated hazards. The removal contractor's site supervisor or competent person will evaluate removal property site activities and associated hazards by completing a site-specific project AHA form (Appendix L) for each removal property. Section 9 provides requirements on removal contractor completion of the AHAs, in addition to those regarding the removal contractor's SSHASP.

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Section 4

General Health and Safety Program

The CSHASP will be made available to removal contractors before start of work. The removal contractors will ensure that all of their employees and site subcontractors are familiar with and abide by the contents of this manual, including any changes promulgated and distributed by Volpe and A&E H&S.

A&E H&S will schedule project safety meetings on a biweekly basis. The purpose of the meetings will be to discuss health and safety concerns as they relate to all construction projects, provide for communication between the removal contractor, Volpe, and A&E H&S, and, in general, further the Project Health and Safety Program. All removal contractors are required to have their project manager and SHSO in attendance.

4.1 Safe Work Environment

The removal contractor's project manager is responsible for maintaining a safe work environment by consistently implementing the CSHASP, SSHASP, and adhering to OSHA standards and guidelines. Volpe should be notified when removal site tasks are altered and when unanticipated hazards arise to discuss safety issues and amend health and safety procedures accordingly.

The first step in controlling hazards is the recognition of the hazard. The removal contractor's project manager, SHSO, site supervisors, and designated competent persons shall perform regular inspections (audits) to identify and direct the correction of unsafe conditions and work practices.

4.2 Safety Audits/Inspections

Safety audits will be conducted by A&E H&S and the removal contractor to identify unsafe conditions and work practices on site. Safety audits are an effective tool in identifying unsafe conditions and work practices. Safety audits may be conducted when new substances, processes, procedures, or equipment are introduced that pose a new occupational health and safety hazard and when new or unrecognized hazards are observed.

4.3 Correcting Unsafe Conditions

Unsafe conditions noted during site inspections are assigned to a responsible person(s) for required follow-up action. The A&E HSM and SHSO review safety inspections to ensure follow-up actions adequately control the hazard(s). A&E H&S and the removal contractor SHSO will monitor the issue until the required follow-up action is complete.

For situations presenting an imminent hazard to employees, work activities will immediately cease and workers shall exit the area until the hazards are controlled. The EPA site remedial project manager, Volpe Center site manager, A&E HSM, A&E CIH/CSP, A&E construction manager, A&E SHSO, removal contractor project manager, removal contractor SHSO, removal contractor site supervisor, and removal contractor competent person have the authority to stop work until hazards are abated. In addition,

any removal contractor employee recognizing a dangerous circumstance or activity at a worksite may stop work until the situation is properly evaluated by the removal contractor and A&E H&S. Hazards shall be controlled in a timely manner, based on the severity of the hazard as determined by A&E H&S.

4.4 Emergency Site Procedures

A&E H&S and the removal contractor project manager must communicate to ensure that adequate emergency response procedures are established. Refer to Appendix A for an emergency site poster that contains a map to the Libby Hospital, emergency contact numbers, and directions for emergency response if an employee is injured in the exclusion zone.

4.5 Standard Site Procedures

Due to the diverse nature of activities performed on the Libby Asbestos Project, there are a number of regulations and standards that the removal contractor must consider during project activities. This section summarizes some of the key OSHA standards and Libby Asbestos Project requirements that are applicable to various activities performed.

The following health and safety program rules are adopted for the protection of all persons involved with activities on the Libby Asbestos Project. These rules apply to management, owners, site personnel, and authorized visitors at the jobsites. These rules are general in nature and are not to be considered all-inclusive, nor do they relieve removal contractors, their employees, or their site subcontractors' employees from applicable occupational health and safety regulations promulgated by governmental authorities.

4.5.1 Competent Person Designation

The removal contractors will submit to Volpe, as part of the SSHASP, a Designation of Competent Person Form (copy provided in Appendix A) that designates a competent person for each area listed. The forms must be maintained by the removal contractor's Project Manager, as well as the S&E H&S manager for tracking purposes. OSHA defines a competent person as, "One who, through training and experience, is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them."

The removal contractor's competent person is responsible for performing the pre-and final-work site inspection and completion of the AHA form, as well as performing regular and frequent site inspections to ensure that the activities are performed in compliance with the CSHASP and SSHASP. Please refer to the following table for a listing of all topic areas that require competent person designation according to OSHA.

Category	OSHA Standards 29 CFR References to a Competent Person
General Inspections	1926.20(b)(2)
Material Handling	1926.251(a)
Welding	1926.354(a)
Scaffolding	1926.451(f)(7), 1926.454(b)
Fall Protection	1926.502* 1926.503(a)(2)
Crane	1926.550*, 1926.552(c)(15)
Excavation	1926.651*, 1926.652*, Subpart P App A,B
Demolition	1926.850(a), 1926.852(c), 1926.859
Ladders	1926.1053(b), 1926.1060(a)(1)
Asbestos	1926.1101*

* Multiple references within this section

4.5.2 Site Setup

It is the removal contractor's sole responsibility to locate and identify all potential utilities at removal properties before the start of work. Traffic controls and signage must be established upon arrival to the work site. The removal contractor will inspect the site to address any observed hazards not identified in the site work plan.

- A work area will be established based on the amount and type of removal activities to be performed. Work area and exclusion zone boundaries will be identified by the following means:
 - Yellow caution tape - denotes general work area boundary
 - Orange fencing/red asbestos tape - denotes exclusion zone areas where the removal activity will occur and where PPE is required

Appropriate OSHA signage must be posted at all entrances and other access points to the exclusion zone.

All mechanical equipment, electrical, and heating ventilation air conditioning (HVAC) systems must be locked out and tagged out as necessary before starting work.

Refer to the *Final Draft Response Action Work Plan for Libby Asbestos Project, Libby, Montana*, (CDM 2003a) (and any revisions thereof) for the specifics of site setup requirements.

4.5.3 Fire Protection

The removal contractor shall be responsible for fire protection throughout all phases of project activities as required by the National Fire Protection Code and OSHA Standards 29 CFR 1926 Subpart F.

Only work procedures that minimize fire hazards to the extent practical shall be used. Fuels, solvents, and other volatile or flammable materials shall be stored in an appropriately constructed storage area as defined by the removal contractor. Good housekeeping is essential to fire prevention and shall be practiced by all site contractors.

All fires, regardless of size, shall be reported immediately to A&E H&S.

Removal contractors will strictly adhere to Forest Service Fire Restrictions that are typically implemented in the dry parts of the summer. Adherence to the restrictions will be discussed with Volpe and A&E H&S.

EPA, Volpe, and A&E H&S have worked with the Libby Ranger District of the Kootenai National Forest to establish fire suppression plans for the Rainy Creek area. A Fire Suppression Restricted Zone was created around the former vermiculite mine to establish initial attack protocols and to prepare a fire management pre-suppression plan.

The plan is based on communication between the United States Forest Service, EPA, Volpe, and A&E H&S to establish safe access, health and safety precautions, and lines of communication for fire suppression teams that need to enter the Rainy Creek area. Kevin Cardwell is the district fire management officer and will serve as the primary contact for a fire in the vicinity of the mine.

4.5.4 Industrial Truck Requirements

Industrial trucks shall be defined as any associated mobile or truck-mounted vacuum apparatus, as well as roll-off trucks used to transport vacuum boxes. Specific industrial truck procedures must be addressed within the removal contractor's SSHASP. Before start of work, the removal contractor must ensure that a Department of Transportation (DOT) inspection has been performed for all associated project equipment. The results of these inspections must be maintained and available for inspection by A&E H&S.

Daily maintenance, operations, and operator training documentation must be maintained with the Industrial Truck at all times when the equipment is in use. The removal contractor's project manager and equipment operator are responsible for ensuring that this documentation is present on a daily basis.

All vacuum machinery must have in-line pressure relief valves or other equivalent safety features that allow for pressure relief in the event that personnel are caught in the vacuum hose. Removal contractor laborers working on attic removal-related activities must be adequately trained in the proper usage of utility knives and related tools used to cut vacuum hoses in emergency situations. Cutting tools are to be used in the correct manner and for their intended purpose. Improper usage of utility knives and cutting tools during attic removal activities has led to past project-related injuries and employee leave of absences.

The operator must be in constant communication with personnel inside the exclusion zone so that appropriate actions may be taken in the event of an emergency.

Appropriate hearing protection must be used by the operator and personnel working inside of the exclusion zone during all vacuum truck related activities.

The removal contractor must address industrial truck operations and safety features, including those mentioned above, in the SSHASP. All industrial truck operations will be evaluated by the removal contractor as part of the site AHA, which will be submitted to A&E H&S for review before the start of removal activities.

4.5.5 Heavy Equipment Safety

The removal contractor will ensure that all heavy equipment operations are performed in accordance with OSHA Standards 29 CFR 1926 Subpart O.

The removal contractor will address all heavy equipment operations and procedures as part of the SSHASP. The removal contractor's project manager is responsible for implementing heavy equipment safety procedures defined in the SSHASP.

Heavy equipment operators must be properly trained and qualified to operate equipment, including understanding its working limits and maintenance, inspection, and transport requirements.

The removal contractor's project manager and the equipment operator are responsible for ensuring that all heavy equipment has required OSHA safety features, including back-up alarms, seat belts, horns, and lights.

Manufacturer's operating instructions should be kept with the equipment, included in the operator training, and used to establish routine maintenance schedules.

All heavy equipment operations will be evaluated as part of the site AHA and submitted to A&E H&S for review before the start of work. Particular attention must be given to heavy equipment hazards associated with energized overhead power lines, pinch points, and work in size-restricted areas.

Heavy equipment is often used in residential areas that are in close proximity to overhead electrical lines. The removal contractor's competent person and SHSO is responsible for evaluating hazards related to overhead electrical lines, and implementing appropriate hazard protections. A&E H&S reserves the right to stop work if excavation operations are performed in close proximity to overhead electrical lines without proper safety measures.

4.5.6 Equipment Lockout/Tagout Clearance Procedures

Whenever service, maintenance, or an inspection is performed on machines, equipment, or electrical circuits, it must be done with the machine, equipment, or electrical circuit stopped and isolated from all sources of energy. The energy isolation device(s) for the machine, equipment, or electrical circuits must be locked out and tagged out in accordance with procedures defined in the removal contractor's SSHASP. Employees involved in the energy control program must be given appropriate training.

Employees authorized to perform the lockout must do so in accordance with project requirements. All employees, upon observing a machine or piece of equipment that is locked out to perform servicing, maintenance, or an inspection, shall not attempt to start, energize, or use that machine or equipment.

The removal contractor will ensure that appropriate precautions are implemented when returning a piece of equipment into service.

4.5.7 Electrical Safety

The removal contractor shall be responsible for maintaining electrical safety throughout all phases of project activities as required in OSHA Standards 29 CFR 1926 Subpart K.

The removal contractor will ensure worker safety through proper training, use of ground fault circuit interrupters (GFCI), an assured equipment grounding conductor program, and frequent and regular inspections of associated equipment and work practices.

Removal contractor personnel will be trained regarding the contents of OSHA Standards 29 CFR 1926.403-417 Subpart K as these standards relate to electrical safety and project activities.

GFCIs shall be used with all power tools and cords. These shall be used regardless of the power source, including portable and wheel-mounted generators. The removal contractor is responsible for implementing an assured equipment grounding conductor program as defined in OSHA Standards 29 CFR 1926.404.

All existing worksite electrical systems that run through established work areas must be identified and de-energized using lockout/tagout (LO/TO) procedures in accordance with OSHA Standards 29 CFR 1926.417. Site LO/TO must be implemented before the start of removal activities. The removal contractor's competent person is responsible for evaluating site LO/TO procedures to ensure that activities are in compliance with OSHA and project requirements.

The removal contractor's competent person must evaluate electrical safety as part of the site AHA which will be submitted to A&E H&S for review before the start of work.

All excavation activities performed within 10 feet of energized overhead electrical lines must be evaluated as part of the site AHA by the removal contractor, and appropriate precautions must be implemented before excavation work may begin.

All scaffolding within 10 feet of energized electrical systems must be guarded against incidental contact, relocated, or temporarily protected.

4.5.8 Trenching and Excavation

The contractor shall appoint a competent person as defined in OSHA Standards 29 CFR 1926 Subpart P to monitor all trench and excavation work.

The removal contractor has sole responsibility for locating all underground utilities before the start of removal activities.

The removal contractor's competent person shall be responsible for all safety requirements as stated in OSHA Standards 29 CFR 1926 Subpart P. The removal contractor will comply with OSHA Standards 29 CFR 1926.650-652 during all project related activities.

The removal contractor will notify A&E H&S of any excavation or trenching activity at depths greater than 4 feet below the surface.

Any trenching activities that will require a worker to work inside of an exposed trench must be included on the site AHA form.

All excavated and available material shall be retained 2 feet or more from the edge of the excavation.

All excavations shall be barricaded with the appropriate barrier tape and other protective devices as required throughout the duration of project activities to ensure worker and public protection.

The removal contractor's competent person shall evaluate all excavation and trenching activities as part of the site AHA, which will be submitted to A&E H&S for review before the start of work.

4.5.9 Fall Protection

OSHA Fall Protection Standards 29 CFR 1926 Subpart M shall be strictly adhered to. Fall protection is required 100 percent of the time when exposed to a fall in excess of 6 feet or when required by additional rules. One hundred percent fall protection is required whether climbing, traveling from point A to point B, connecting structural steel, or erecting scaffolds or other temporary platforms. No employee or work operation is exempt from the 100 percent fall protection requirement.

The removal contractor is required to include a Fall Protection Program as part of the SSHASP. The removal contractor's project manager is responsible for providing a training program for each employee who might be exposed to fall hazards. The training program shall be taught by a competent person and shall meet the requirements specified in OSHA Standards 29 CFR 1926.503.

The removal contractor's competent person must assess all work activities requiring fall protection as part of the site AHA before the start of work, and must frequently inspect activities to ensure that the Fall Protection Program is properly implemented. A&E H&S will review the AHA form and inspect site operations to ensure that the removal contractor is implementing fall protection according to OSHA and project requirements.

Before each use, the removal contractor's competent person shall visually inspect all fall arrest equipment for cuts, cracks, tears or abrasions, undue stretching, overall deterioration, mildew, operational defects, heat damage, or acid or other corrosion. Equipment showing any defect shall be withdrawn from service. All fall arrest equipment subjected to impacts caused by a free-fall or by testing shall be removed from service. All activities requiring the use of fall protection must be inspected by the removal contractor's competent person, who is required to sign the AHA stating that the equipment and procedures used are in compliance with applicable OSHA standards and project requirements.

Guardrail systems and their use shall comply with OSHA Standards 1926.502(b). Proper guardrails shall be installed on open sides of all personnel access pathways where the fall distance exceeds 4 feet. Proper guardrails shall be installed on open-sided floors where the fall distance exceeds 6 feet. All floor openings or floor holes shall be protected by

guardrails or hole covers. If hole covers are used, they shall be strong enough to support the maximum intended load, secured against displacement, and properly labeled.

When guardrails are used for fall protection, they shall consist of a top rail, intermediate rail, and toeboard. The top rail shall have a vertical height of 42 inches plus or minus 3 inches above walking/working level, a midrail height of at least 21 inches, and a toeboard height of at least 4 inches. When wood railings are used, the post shall be at least 2-inch by 4-inch stock spaced not to exceed 8 feet, the top rail shall be at least 2-inch by 4-inch stock, and the intermediate rail shall be at least 1-inch by 6-inch stock. If pipe is used, it shall be at least 1½ inches nominal diameter. If structural steel is used, it shall be 2-inch by 2-inch by 3/8-inch angles or equivalent. If wire rope is used for railings, it shall have a diameter of at least 2 inches and shall be stretched taut to allow no more than a 3-inch deflection.

The removal contractor must ensure that appropriate precautions have been implemented to prevent hazards from falling objects.

4.5.10 Scaffolding

The removal contractor's project manager shall ensure that all scaffolding is constructed and used in accordance with OSHA Standards 29 CFR 1926.451 Subpart L. Scaffolds must be erected with adequate footing, anchorage, and bracing to support the maximum intended load without settling or displacement. No scaffold should be erected, moved, or dismantled except under the supervision of a qualified person.

The removal contractor employee who constructs the scaffold or has the scaffold constructed is responsible for ensuring it is built to project and OSHA standards and inspected by the removal contractor's competent person before use.

Removal contractor personnel shall periodically inspect all scaffolds. The inspection shall ensure that all scaffolds are properly tagged and in compliance with project and OSHA standards. If scaffolds are used in a manner that is inconsistent with the manufacturer's original design intent, such as placing a containment on top of a scaffold, the removal contractor must ensure that the scaffold system is appropriately anchored to the structure.

4.5.11 Ladders

All project activities requiring the use of ladders shall comply with OSHA Standards 29 CFR 1926.1050-1060 Subpart X.

The removal contractor must include ladder safety as part of the SSHASP and set forth the conditions and circumstances under which ladders will be used on the project, as well as inspection requirements.

OSHA Standards 29 CFR 1926.1060 requires that a training program be provided for employees using ladders so that he or she will be able to recognize the hazards related to ladder use and take appropriate protective measures if necessary.

All project ladders must have a minimum 250-pound weight limit.

All project ladders must be appropriately tied off.

The removal contractor's competent person must evaluate ladder use as part of the site AHA before the start of work. The AHA will be submitted to A&E H&S for review to ensure compliance with OSHA and project requirements.

All ladders shall be inspected frequently and regularly. Ladders with weakened, broken, or missing steps, broken side rails, or other defects shall be tagged and removed from service.

4.5.12 Housekeeping

Removal contractors shall, at all times, maintain work areas free from accumulations of waste material, trash, and debris caused by their work. Each work area shall be cleaned and swept each day, if applicable, by the contractor or as often as necessary to remove fire and safety hazards discovered through regularly scheduled inspections. All generated asbestos containing material (ACM) waste must be removed from the site on a daily basis. Under no circumstances will ACM waste or other debris be allowed to accumulate on site.

Pre-job planning shall include consideration of housekeeping plans and will include methods and equipment or tools necessary. The removal contractor's supervisors shall be instructed by the removal contractor to maintain good housekeeping.

4.5.13 Material Handling

The removal contractor will ensure that all appropriate material handling procedures are implemented during project-related activities.

The removal contractor will consult with A&E H&S to determine the status of any construction debris generated during removal activities that was not identified as ACM on the site work plan.

The removal contractor will inspect all trucks used to haul contaminated soil to ensure that the tarps adequately seal off the truck bed and prevent dust emissions during transport. A&E H&S will also regularly inspect haul truck tarp systems to ensure they are in compliance with project requirements.

4.5.14 Demolition

The removal contractor will ensure that project-related demolition activities are conducted in accordance with all applicable areas of OSHA Standards 29 CFR 1926 Subpart T. The removal contractor's competent person must evaluate demolition safety as part of the site AHA which will be submitted to A&E H&S for review before the start of work.

All exterior or structure demolition must be approved by the EPA and Volpe Center prior to start of work. A&E H&S must be informed by the removal contractor of all interior demolition activities prior to start of work.

4.5.15 Hand Tools

The removal contractor is responsible for ensuring that all hand and power tool operations are conducted in accordance with OSHA Standards 29 CFR 1926.300-305.

All tools, regardless of ownership, shall be of an approved type and maintained in good condition. Defective tools shall be tagged to prevent their use or they shall be removed from the jobsite.

The noncurrent-carrying metal parts of portable electric tools such as drills, saws, and grinders shall be effectively grounded when connected to a power source.

All power tools and cord sets shall be protected by GFCI.

4.5.16 Welding and Cutting

Removal contractors shall inform A&E H&S before welding, cutting, grinding, or performing any other "hot work."

All welding and cutting activities will be assessed by the removal contractor's competent person as part of the site AHA before the start of work. The completed AHA form will be submitted to A&E H&S for review.

Only experienced and properly trained persons shall perform welding and cutting. Before welding or cutting is started, the area shall be inspected for potential fire hazards. A fire watch will be instituted during all hot work operations and will continue for one hour after hot work operations have ceased.

Suitable fire extinguishing equipment shall be immediately available at all locations such work is performed.

4.5.17 Onsite Storage and Dispensing of Flammable and Combustible Liquids

The removal contractor shall ensure that applicable sections of OSHA Standards 29 CFR 1926.152 and 1926.153 are strictly adhered to during all project-related activities.

Flammables and other combustibles are regularly encountered during typical removal and restoration activities, and must be included in the AHA to ensure proper notification for worker safety, training, and that proper material handling procedures are implemented.

4.6 Landfill Operations

All Libby Asbestos Project activities conducted in the Asbestos Cell (cell) of the Lincoln County Landfill will be done in accordance with the *Draft Revised Lincoln County Class IV Asbestos Landfill Operations Plan* (CDM 2004a). This document outlines specific procedures to be used by the removal contractor when any project-related activities are performed in the cell, such as dumping, hauling, and burying ACM; maintaining the cell in proper working order; and decontaminating hauling vehicles, equipment, and personnel.

4.7 Mine Road Operations

All Libby Asbestos Project activities conducted at the Mine Road will be done in accordance with the *Final Disposal Operations Plan for the Former W.R. Grace Mine* (CDM 2004b). This site-specific health and safety plan was developed jointly by A&E H&S and the removal contractor for Mine Road operations and focuses on traffic management; heavy equipment operation; safe material handling; and decontamination of hauling vehicles, equipment, and personnel.

4.8 Accident Reporting and Investigation

All injuries, near misses, occupational illnesses, accidents, unsafe conditions, fatalities, property damage accidents, and damaging fires are to be investigated by the removal contractor's SHSO. The removal contractor's SHSO shall complete an Injury/Illness Report Form (Form A) when necessary. The removal contractor's SHSO shall submit the completed report to the A&E HSM along with any supportive documentation such as photographs, witness statements, etc., within 2 working days after the injury/illness. Reports shall be dated and signed by the removal contractor's SHSO and project manager.

Necessary medical services and employee care are to be secured before the initiation of reporting and investigation.

The removal contractor's project manager or SHSO will verbally notify the A&E HSM of any serious accident, serious injury, fatality, or damaging fire as soon as medical services are secured. The A&E HSM is to be notified regardless of the day or hour.

4.9 Follow-Up

If the injury/illness resulted from the uncontrolled release of hazardous material, the A&E HSM is to be notified immediately so that discussions with the occupational physician can occur to determine if additional biological monitoring should be prescribed.

As soon as practical following the initial medical treatment, the injured removal contractor employee is to be scheduled into the clinic that administers the annual examinations for the injured employee's office. This is necessary to ensure that the employee receives quality medical treatment during any type of recovery period.

Accident reporting procedures that are client-specific and applicable are also to be enacted at this time.

The A&E HSM and SHSO will follow up with the removal contractor project manager and SHSO to ensure that corrective action, if identified on the Injury/Illness Report Form, has been implemented.

4.10 OSHA Inspection Procedures

The A&E HSM shall accompany OSHA during inspections of the construction site. Also, as required by OSHA, each removal contractor will require his/her employees to select a representative(s) to accompany the OSHA compliance officer during site inspections.

The A&E HSM shall examine the OSHA compliance officer's credentials before the start of any onsite inspection. At all times while on site, the OSHA representative shall be treated courteously and given full cooperation.

4.11 Safety Policy Memoranda

From time to time, as the need is identified, Volpe and A&E H&S will issue safety policy memoranda that affect the entire project. Safety policy memoranda will be identified by a number and a specific safety subject, such as Safety Policy Memorandum 1 (Scaffolding). Safety policy memoranda will be issued to all persons who have received a copy of the CSHASP. They are to be inserted at the end of this manual.

The person responsible for the receipt and maintenance of the manual shall also be responsible for informing his/her firm's employees and subcontractors of the contents of the safety policy memoranda.

Section 5

Training

5.1 Introduction

Ensuring that removal contractor employees have the appropriate skills to perform the tasks assigned to them safely is a key accident prevention tool. The three main goals of removal contractor employee training are:

- Train employees to identify and evaluate hazards correctly
- Give employees the technical understanding of how to work in a safe manner
- Promote safety awareness so that employees develop the attitude to want to work in a safe manner

5.2 Initial Training

Removal contractors are responsible for training their site employees initially assigned or new to the hazards and precautions applicable to their work; transferred to a new site job; and when site processes, hazards, or controls change.

The contents of initial training will include:

- Training required under OSHA Standards 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response Standard)
- Comprehensive training on hazards and precautions specific to the employee's work
- A discussion of employee rights and responsibilities under OSHA regulations
- An explanation of who to contact with questions or concerns
- Training required under OSHA Standards 29 CFR 1926.65 (Safety and Health Regulations for Construction, Hazardous Waste Operations, and Emergency Response Standard)
- A review of this CSHASP
- A review of the removal contractor's SSHASP
- An asbestos awareness training course
- A respiratory protection training course

5.3 Refresher Training

Longer-service removal contractor employees will require refresher training when:

- Safety rules and regulations change
- Organizational structures change (e.g., training in whom to contact)
- New equipment or procedures are introduced
- Additional skills, such as first aid, are needed
- Annual refreshers dictate
- Site-specific refreshers dictate

5.4 Supervisory Training

In addition to the initial and refresher training requirements, those removal contractor employees who supervise individuals performing activities at a hazardous or potentially hazardous waste site are required to have an additional 8 hours of training. Topics included in this training include: the CSHASP, chemical and physical hazard recognition, spill containment, contingency plans, health hazard monitoring, and other subjects that help them perform activities in a safe and healthy fashion.

5.5 Site Orientation

A thorough orientation meeting will be held by the removal contractor for all of its Libby Asbestos Project personnel working on site in Libby, Montana. Required project health and safety procedures will be reviewed during the meeting. The site orientation will be documented with an Employee Meeting Record Form (Appendix A, Form B) and the CSHASP signature page, and the removal contractor will make such documentation available to A&E H&S upon request.

Subsequent orientations are to be held as new project employees or subcontractors come on site.

5.6 Toolbox Safety Meetings

Toolbox Safety Meetings discuss site-specific work tasks, the hazards involved, and controls for those hazards.

The removal contractor project manager or SHSO shall hold Toolbox Safety Meetings on a routine basis. The degree of hazards, injuries, accidents, and the number of employees/subcontractors are factors that may warrant more frequent Toolbox Safety Meetings.

5.7 Subcontractor Training

The removal contractors are solely responsible for ensuring appropriate training for their subcontractors' employees working on site. All subcontractor employees must perform project-related work in accordance with project H&S protocol, including the incorporation of all required PPE and equipment safety features. Removal contractors are required to supervise their subcontractor's work practices and enforce project requirements.

Depending on site operations, joint Toolbox Safety Meetings may be appropriate. Joint Toolbox Safety Meetings will be held by the removal contractor with its Libby Asbestos Project onsite subcontractors in attendance.

5.8 Recordkeeping

The removal contractor is required to maintain records of all project-related health and safety training for its employees and site subcontractors, and make such documentation available to A&E H&S upon request.

5.9 Hazard Communication Program

Employees have the right to know about the hazards of materials they work with. Before any work is performed with hazardous materials, the removal contractor must conduct a training session with all its site employees and site subcontractor employees expected to be working with such materials.

The removal contractor's Hazard Communication Program implements the requirements of OSHA Standards 29 CFR 1910.1200 (Hazard Communication Standard). This standard requires that all employees handling or using materials that may be hazardous, be advised and informed as to the hazard potential associated with those materials. Removal contractor compliance with the scope and intent of the standard includes a health and biological surveillance program, employee education and training program, and employee exposure determination program.

Each removal contractor's project manager has overall responsibility for implementation of the Hazard Communication Program. A&E H&S reserves the right to review hazard communication efforts to ensure that sufficient programs have been implemented by the removal contractors.

5.9.1 Material Safety Data Sheets

A material safety data sheet (MSDS) is an information sheet that provides specific identification information about a chemical or material. The MSDS information may include:

- Ingredients and hazards
- Physical data
- Fire and explosion information
- Reactivity data
- Health hazard information
- Spill risk and disposal procedures
- Special protection information
- Special precautions required for use

It is the manufacturer's responsibility to provide this information for any materials containing hazardous or potentially hazardous ingredients.

A comprehensive collection of MSDSs exists. Before any project startup, it is the removal contractor's responsibility to ensure that MSDSs are available for any material expected to be used or encountered during project work that represents a potential health and safety hazard to its employees or those of its site subcontractors. MSDSs should be secured from the manufacturer and/or project owner.

Copies of MSDSs for all materials expected to be used or encountered during project work are to be made available in a central location by the removal contractor for its employees and those of its site subcontractors. Copies of MSDSs will be made available to A&E H&S upon request.

5.9.2 Nonroutine Tasks

When employees are required to perform hazardous nonroutine tasks (e.g., confined space entry, line breaking, tank cleaning), a special training session will be held. This session will inform employees about the hazards and hazardous materials to which they may be exposed as well as the proper procedures and PPE to be used to minimize exposure potential.

5.9.3 Education and Training

All education and training of removal contractor personnel and their site subcontractor personnel working with hazardous materials will include the following:

- A review of the chemicals present and anticipated to be encountered during the course of the project
- Identification of the location and availability of the written hazard communication program, the inventory of chemicals expected to be used and/or encountered, and the MSDSs for those materials
- A discussion of the methods and observation techniques that may be used to detect the presence of hazardous chemicals released in the work area
- A discussion of how to lessen or prevent exposure to hazardous workplace chemicals
- Instruction in emergency procedures to follow if employees are exposed to hazardous chemicals
- An explanation of the hazard communication program, including how to read labels and MSDSs to obtain appropriate hazard information
- An explanation of the proper use of PPE

Section 6

Medical Surveillance

The removal contractor medical surveillance program will consist of a combination of:

- Baseline, annual, interim, exit, and return to work examinations
- Services for the evaluation of occupationally related injuries and illnesses

The medical surveillance program is designed and administered by a board certified, occupational physician.

All removal contractor employees are instructed that they are to advise management of prescription drug usage during the performance of any assigned activities. Also, female employees are encouraged to advise their immediate supervisor of any change of physical status related to pregnancies. Medical monitoring protocol for personnel assigned to hazardous, or potentially hazardous, waste sites is provided in Table 6-1.

Table 6-1
Medical Monitoring Protocol

Exam Components	Baseline¹	Annual²	Interim	Exit
Blood and Urine Specimen	Yes	Yes	Yes	Yes
Vital Signs	Yes	Yes	Yes	Yes
Vision Screening (to include peripheral and color)	Yes	Yes	Yes	Yes
Dipstick Urine Analysis	Yes	Yes	Yes	Yes
Audiometry	Yes	Yes	No	Yes
Spirometry	Yes	Yes	Yes	Yes
EKG	*	*	No	*
Chest X-Ray	Yes	*	No	*
Review of History	Yes	Yes	Yes	Yes
Physical Exam	Yes	Yes	Yes	Yes

1. Only do an X-ray if not done within the last 12 months

2. Only do an X-ray if not done within the last 3 years

* For medical indications only

All removal contractor field personnel will be provided with a thorough, initial medical examination to assess fitness for the job and provide baseline health data for subsequent reference. Examinations will be repeated annually unless abnormal test results or other problems dictate more frequent observation.

During the medical examination, employees will be evaluated for their ability to wear respiratory protection and other protective equipment (e.g., extensive clothing ensembles). This evaluation will include, as a minimum, an examination of the cardiopulmonary system (i.e., forced vital capacity [FVC] and forced expiratory volume — 1 second [FEV 1.0]). When indicated by the physician, other tests of the respiratory and cardiovascular systems will be performed on the basis of an individual's past history, findings of the above evaluation, and/or the type of equipment the individual may be required to use.

An example medical authorization form is provided as Appendix A, Form H.

6.1 Baseline Medical Examination

The baseline medical examination is conducted to determine whether an employee is physically and mentally suitable to perform work requirements and assignments as outlined in the job description; to provide baseline values for comparison with later test results; and to evaluate the employee's ability to use personal respiratory protection and other protective equipment. The baseline medical examination will include, as a minimum:

- A medical and work history
- Physical examination, which includes vital signs and an evaluation of all major organ systems
- Audiogram
- Vision screening
- Chest X-ray (only if there was no X-ray within 12 months)
- Blood chemistry screen and profile
- Urinalysis
- Spirometry

6.2 Annual/Interim Medical Examinations

Annual/interim medical examinations will be given every 12 months or more frequently if indicated by substandard performance, evidence of particular stress or difficulty in using personal respiratory protection, signs/symptoms of illness commonly associated with chemicals present at the site, or if employees were exposed to Libby ACM while unprotected. Employees experiencing signs and symptoms or having complaints must immediately report the problem to the removal contractor SHSO. Employees having abnormal test results will also be monitored and tested by a physician at intervals prescribed in appropriate federal codes (i.e., OSHA Standards 29 CFR, 1926.52, 1910.134, 1910.1001, 1910.1025, 1910.1018, and 1910.120).

Components of the annual medical exam are similar to the baseline examination. Following the annual or interim examination, the physician will submit in writing to the removal contractor any medical and safety restrictions required, and the physician will inform the employee of the test results. The physician will indicate the reasons for restricting work and will submit an appropriate plan of medical supervision for any work-related illnesses or injuries.

***Note:** There are site-specific contaminants that may warrant specific biological monitoring. When these types of contaminants are identified, the contaminants and the work to be performed are discussed with the occupational physician.*

6.3 Exit Medical Examination

If employment is terminated voluntarily or involuntarily, an exit medical examination will be offered. The content of the exit medical examination will incorporate those elements included in the baseline examination. Signs or symptoms of work-related illnesses will be reported immediately.

An employee who refuses to submit to an exit examination will be advised by the removal contractor of the potential hazards and will complete a waiver form stating that the employee has been advised of the need for an examination, has voluntarily refused an examination, and waives the right to future litigation relative to conditions that may have been detected in the course of the examination.

The removal contractor will attempt to contact employees who terminated employment without an exit examination. A record of efforts to contact employees who leave employment without notice and without undergoing an exit examination will be kept by the removal contractor. The record will become part of the employee's medical records.

6.4 Return-to-Work Examinations

A removal contractor employee desiring to return to work following a leave of absence due to injury or illness, or return to full status from a restricted work period resulting from an injury/illness will have to obtain clearance by means of a physical examination. Extent of the physical examination will be determined by the occupational physician and will be performed at the locally established medical services provider.

6.5 Access to Employee Medical Records

In compliance with OSHA Standards 29 CFR 1910.120, all employees and their designated representatives have access to their own medical records developed as part of this program. Employees must request the records in writing and specify the name, address, and telephone number of the physician who is to receive the records. Such requests are to be sent to the removal contractor. The request for medical records is shown as Appendix A, Form I.

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Section 7

Personal Protective Equipment

Activities to be performed during the project will frequently require the use of clothing and equipment that shields and/or isolates employees from asbestos and physical hazards that may be encountered.

Based on a historical review of project activities, the following work classifications will be used to determine the required PPE for a particular task. Refer to Table 7-1 for required respiratory protection based on the activities expected to be performed on site.

Interior removal activities are typically composed of the following four distinct work types:

- **Interior Demolition** - uses intrusive methods such as cutting, sawing, or demolishing existing materials to access vermiculite-containing materials
- **Bulk Removal** - involves removal of bulk vermiculite-containing insulation (VCI), Libby vermiculite (LV), associated insulation, and other ACM from containment areas
- **Detail Cleaning** - performed once bulk removal is complete to remove any remnant VCI or LV from cracks, crevices, or other areas that were not addressed during bulk removal
- **Interior Cleaning** - cleaning activities performed in an interior living space

Exterior removal activities relate to soil excavation and are not divided into separate categories for PPE selection.

Building demolition typically involves a structure that has not had all of its ACM removed before such activities. Building demolition may only be performed with the prior consent of EPA. A site-specific work plan must be provided by the removal contractor before the start of building demolition activities.

7.1 Levels of Protection

Each type of protective equipment has been designed specifically to protect against a reasonably anticipated hazard. To standardize PPE ensembles, “levels of protection” have been defined to address hazards present at the site. The levels of protection are defined accordingly:

Level C -PAPR	This level is worn when a higher level of respiratory protection is required. Powered air purifying respirators (PAPR) are required for all operations at the Asbestos Landfill, during all bulk VCI removal activities, and during all demolition activities.
Level C	This level is worn when criteria for full- or half-face air-purifying respirators (APR) are determined to be necessary. Level C is

required during all detailing and interior cleaning activities, as well as all soil removal activities.

Level C Modified This level is applied during short duration, i.e., less than half of a day, removal activities where use of a decontamination trailer is unnecessary. The level of respiratory protection for these activities is the same for Level C (APR), and workers are allowed to wear street clothes under Tyvek® suits for these limited activities.

Additional safety equipment required for all Level C activities include the use of Tyvek® suits, hard hats, eye protection, and steel-toed boots.

Level D This level is worn when activities and areas do not present a respiratory or skin hazard.

Table 7-1 details the types of equipment, Libby Asbestos Project removal activities, and limitations associated with each level of protection. The removal contractor project manager is responsible for ensuring that contractor employees conform to the PPE criteria listed in the table.

Table 7-1
Levels of Protection

<i>Level</i>	<i>Equipment</i>	<i>Protection Provided</i>	<i>Should be Used When:</i>	<i>Limiting Criteria</i>
C-PAPR	<ul style="list-style-type: none"> Powered air purifying HEPA cartridge-equipped respirator (PAPR) Hooded, disposable Tyvek one-piece suit Chemical-resistant gloves Safety boots/shoes Hard hat Two-way radio communications Hearing protection 	Provides the greatest level of respiratory protection for potential asbestos exposure	<ul style="list-style-type: none"> All operations performed at the Lincoln County Asbestos Landfill All VCI bulk removal activities All interior or exterior demolition activities 	Use only when it is highly unlikely that the work being done will generate either high concentrations of vapors, gases, or particulates or splashes of material that will affect exposed skin.
C	<ul style="list-style-type: none"> Full- or ½-face, air-purifying, HEPA cartridge-equipped respirator (APR) Hooded disposable Tyvek one-piece suit Chemical-resistant gloves Safety boots/shoes Hard hat Safety vests¹ Two-way radio communications Hearing protection Safety glasses² 	Adequate respiratory protection for potential asbestos exposure during activities that are less intrusive than those requiring use of a PAPR	<ul style="list-style-type: none"> All detailing activities All interior cleaning activities All soil removal activities 	<p>PAPRs may still be required if the activities are anticipated to generate large amounts of dust, or are performed in interior areas that are limited in size.</p> <p>¹Safety vests only required during exterior removals.</p> <p>²Safety glasses required if ½-face respirator is used.</p>
C-Modified	<ul style="list-style-type: none"> Full- or ½-face, air-purifying, HEPA cartridge-equipped respirator (APR) Hooded disposable Tyvek one-piece suit Chemical-resistant gloves Safety boots/shoes Safety vests¹ Hard hat Two-way radio communications Hearing protection Safety glasses² 	Adequate respiratory protection for potential asbestos exposure during activities that are less intrusive than those requiring use of Level C.	<ul style="list-style-type: none"> Short-duration interior cleaning or detailing activities Short-duration exterior soil removal activities Small-scale vermiculite removals (SSVR) 	<p>Short-duration activities are those that are expected to take less than half a day to complete.</p> <p>All PPE is the same as Level C, but a decontamination trailer is not required for these activities.</p> <p>¹Safety vests only required during exterior removals.</p> <p>²Safety glasses required if ½-face respirator is used.</p>
D	<ul style="list-style-type: none"> Work clothes Safety boots/shoes Safety glasses Safety vest Hard hat Hearing protection 	Provides protection against typical site physical hazards	<ul style="list-style-type: none"> Required during all non-Level C activities 	

7.2 Use of Personal Protective Equipment

Use of PPE is required by OSHA Standards 29 CFR 1910 and 1926, and is reinforced by EPA regulations in 40 CFR Part 300. These regulations include all individuals who may perform work at hazardous, or potentially hazardous, waste sites, when applicable. Types of protection, relevant OSHA regulation, and the source of the regulation appear in Table 7-2.

Table 7-2
OSHA Standards for the Use of Personal Protective Equipment

<i>Type of Protection</i>	<i>Regulation</i>	<i>Source</i>
General	29 CFR 1910.132	41 CFR Part 50-204.7 General Requirements for Personal Protective Equipment
	29 CFR 1910.1000	41 CFR Part 50-204.5, except for Table Z-2, the source of which is American National Standards Institute, Z37 series ¹
	29 CFR 1910.1000-1045	OSHA Rulemaking
Eye and Face	29 CFR 1910.133(a)	ANSI Z87.1- ¹ Eye and Face Protection
Noise Exposure	29 CFR 1910.95	41 CFR 50-204.10 and OSHA Rulemaking
Respiratory	29 CFR 1910.134	ANSI Z88.2- ¹ Standard Practice for Respiratory Protection
Head	29 CFR 1910.135	ANSI Z89.1- ¹ Safety Requirements for Industrial Head Protection
Foot	29 CFR 1910.136	ANSI Z41.1- ¹ Men's Safety Toe Footwear
Electrical Protective Devices	29 CFR 1910.137	ANSI Z9.4- ¹ Ventilation and Safe Practices of Abrasive Blasting Operations

¹ American National Standards Institute (ANSI), 1430 Broadway, New York, New York 10018

PPE in use shall be inspected daily and maintained in serviceable condition. Items of personal issue shall be cleaned and sanitized as appropriate before being reissued to another employee. Defective or damaged PPE shall be taken out of service immediately.

7.2.1 Hard Hats

Hard hats are required at all times while on the construction site. Hard hats shall comply with the ANSI Z89.1 requirements.

Alternative head protection, such as the use of bump caps in attics, may be evaluated for use. Any alternative protection measures must be reviewed and approved by A&E H&S prior to use.

7.2.2 Footwear

Safety-toe footwear is required at all times while on the construction site. Footwear shall comply with the ANSI Z41.1 requirements.

7.2.3 Safety Glasses

Safety glasses are required at all times while on the construction site, except when respiratory protection prevents the use of safety glasses. Safety glasses shall comply with the ANSI Z87.1 requirements.

7.2.4 Respirators

Please refer to Section 8.

7.2.5 Hearing Protection

Employees shall use hearing protection when noise levels exceed the allowable limit. A Hearing Conservation Program shall be implemented if the allowable limits are exceeded.

Protection against the effects of noise exposure shall be provided when sound levels exceed those in the tables below. Noise exposure limits are generally applied as an 8-hour exposure limit of 85 decibels on the A scale (dBA). For exposures of shorter or longer durations, the exposure limit may be adjusted as indicated in the table. Hearing Conservation Program elements are required to be implemented whenever employee noise exposures equal or exceed an 8-hour time-weighted average of 85 dBA. Hearing Conservation Program elements include exposure monitoring, audiometric testing, medical monitoring, and training. The dose criterion of 85 dBA for an 8-hour exposure is referred to as the action level.

Continuous Noise Permissible Exposure Limits

Duration (Hours)	Sound Level (dBA)*
16	80
8	85
4	90
2	95
1	100
0.5	105
0.25	110
0.125 or less	115

*Measured on the A-scale of a standard sound-level meter set at slow response.

Impulse Noise Permissible Exposure Limits

Sound Level (dBA)*	Permitted Impulses/Day
140	100
130	1,000
120	10,000

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Section 8

Respiratory Protection

The following information and guidelines are necessary for the proper selection, use, and maintenance of respiratory protective devices. These guidelines are applicable to all employees performing duties requiring the use of respiratory protection and are designed to comply with OSHA Standards 29 CFR 1910.134.

8.1 Definitions

Approved - Tested and listed as satisfactory by the National Institute for Occupational Safety and Health (NIOSH) and/or the Mine Safety and Health Administration.

Contaminant - A harmful, irritating, or nuisance material in concentrations exceeding those normally found in the ambient air.

Disinfection - The destruction of pathogenic organisms, especially by means of chemical substances.

Immediately Dangerous to Life or Health (IDLH) - An atmospheric concentration of any toxic, corrosive, or asphyxiant substance that poses an immediate threat to life, would cause irreversible or delayed adverse health effects, or would interfere with an individual's ability to escape from a dangerous atmosphere.

Oxygen-Deficient Atmosphere - An atmosphere containing 19.5 percent or less of oxygen by volume.

Particulate Matter - A suspension of fine solid or liquid particles or fibers in air such as dust, fog, fume, mist, smoke, or sprays.

Pneumoconiosis-Producing Dust - Dust that when inhaled, deposited, and retained in the lungs may produce signs and symptoms of pulmonary disease.

Respirator - An approved device designed to provide the wearer with respiratory protection against inhalation of a contaminated atmosphere and, for some devices, oxygen-deficient atmospheres.

Vapor - The gaseous state of a substance that is solid or liquid at ordinary temperature and pressure.

Dusts - Solid particles, mechanically produced, with a size ranging from submicroscopic to macroscopic.

Fumes - Solid particles generated by condensation from the gaseous state, generally after volatilization from molten metals, with a size usually less than one micrometer in diameter.

Mists - Suspended liquid droplets generated by condensation or by breaking up of a liquid with a size ranging from submicroscopic to macroscopic.

Gases - Substances that are gaseous at ordinary temperature and pressures.

8.2 General Requirements

Respirators will be considered an acceptable method of protecting the health of personnel only under the following circumstances:

- When it has been determined that there are no feasible engineering or work practice controls that can be used to adequately control the hazard
- During intermittent, nonroutine operations
- During interim periods when engineering controls are being designed and/or installed
- During emergencies
- As part of a safety procedure where a possibility for an excessive or potentially hazardous condition has been defined
- Air purifying respirators may only be worn in atmospheres that contain at least 19.5 percent and not more than 23.5 percent oxygen

The multiplicity of hazards that may exist in a given operation requires a careful and intelligent respirator selection. The selection is made complex by the many types of respirators available. Each type has its special limitations, applications, and operational and maintenance requirements. For these reasons it is important that the individual responsible for the removal contractor's respiratory program be trained and knowledgeable in the basic principles of respiratory selection and use.

The standards governing the development of this program include but are not limited to the following:

- ANSI: *Practices for Respiratory Protection*, Z88.2-1992
- OSHA Standards 29 CFR 1910.134 and 1926.103

8.3 Medical Surveillance

Employees will not be assigned to tasks requiring the use of respiratory protection unless they have been determined to be physically able to wear such equipment in accordance with the Medical Surveillance Program described in Section 6.

8.4 Selection of Respiratory Protective Devices

Selection of respiratory protective devices for projects that require the use of such PPE is performed during the generation of SSHASPs and/or AHAs. Information contained in Table 8-1 is used in the selection process.

When selecting the correct respiratory protective devices, there are several factors that must be considered, including:

- *Nature of the Hazard.* Before selecting a respirator, the nature of the inhalation hazard must be identified. Oxygen deficiencies, physical hazards, chemical properties, movement and work rate limitations, and actual chemical concentrations and warning properties are all factors that must be considered.
- *Nature of Operation.* The details of the actual operation and/or process that is creating the hazard is important in selecting appropriate respiratory protection.
- *Respirator Capabilities and Limitations.* There are limitations associated with each type of respiratory protection devices. These limitations are discussed in Table 8-2.

A&E H&S will review the removal contractor's selection of respiratory protective devices. Generally speaking, when Level C PPE is required, it will consist of a full-face respirator with a mine safety appliance (MSA) GMC-H (NIOSH approval number TC-23C-1283) cartridge, or, a half-face respirator with P100 cartridges.

Table 8-1
Respiratory Protection Factors*

<i>Respirator</i>	<i>Protection Factor</i>
I. Particulate Filter Respirators	
- Powered air-purifying respirator with high-efficiency particulate filter (full-face).	100
- High-efficiency particulate filter respirator with a full facepiece.	50
- High-efficiency particulate filter respirator with a half facepiece.	10

* Adapted from ANSI Z88.2

Definition: Ratio of contaminant concentration outside respirator to inside.

Use: Allows calculation of maximum use concentration in which a particular type of respirator will provide adequate protection to wearer (i.e., permissible exposure limit [PEL] x protection factor [PF] = maximum use concentration).

Table 8-2
Respiratory Protection Devices

<i>General Description</i>	<i>Limitations</i>	<i>A&E Federal Requirements</i>
Air Purifying Respirators		
Half-mask or full facepiece respirator equipped with air purifying units to remove gases, vapor, and particulate matter from the ambient air before its inhalation. Some air purifying respirators are power-operated and provide respirable air to the facepiece (or hood) under a slight positive pressure.	Do not protect against oxygen deficient (<19.5%) atmospheres or atmospheres that are immediately dangerous to life and health (IDLH). The method of purification is generally chemical or chemical-group specific so they cannot be used in atmospheres that contain unknown concentrations of unknown materials. Also cannot be used in atmospheres containing chemicals that present a health risk below their odor or taste thresholds. The useful life of this type of respirator is limited to the concentrations of contaminants, the breathing demand of the wearer, and the removal capacity of the purification medium.	When Level C respiratory protection devices are specified, they will consist of a full-face respirator with an MSA GMC-H (NIOSH approval number TC-23C-1283) cartridge or equivalent. Alternative respirators and cartridges must be approved by the HSM.
Atmosphere-Supplying Respirators		
A respirable atmosphere is supplied independent of the ambient air surrounding the wearer. These devices provide protection against oxygen deficiency and most toxic atmospheres.	Some limitations of atmosphere supplying respirators include time limitations of supplied air, bulkiness of equipment, and inherent safety hazards associated with working while dragging an airline or while wearing an air cylinder.	SCBAs will be pressure-demand types of devices, and where appropriate, equipped with an emergency escape bottle.

8.5 Training

Respirators will not be issued to employees who have not been adequately trained in their use. At a minimum, all employees and supervisory personnel who may be required to wear respiratory protective devices will receive training in the following:

- Problems associated with improper respirator usage.
- The nature of hazards associated with airborne contaminants.
- The capabilities and limitations of respirator types.
- The proper care, use, and maintenance of respirators.
- The performance of positive and negative field fit checks each time respiratory protection is donned. This includes the importance of the facepiece-to-face seal and of not using respirators when a good seal is not achievable.
- The fact that parts from different respirators are not interchangeable.
- How to properly inspect respiratory protective devices before use.
- Successful completion of a fit test for the specific respirator that is to be used.

Documentation of training is completed for each individual and maintained in the training tracking system. An example of the respirator training form documentation appears as Appendix A, Form J.

8.6 Fit Testing and Field Checks

Fit testing will be performed on all employees assigned to project work that may require the use of respiratory protective devices. Fit testing of removal contractor employees will be performed by a trained and qualified individual in accordance with accepted fit test procedures. Documentation of fit testing is completed for each tested removal contractor employee and is to be maintained by the removal contractor for review by A&E H&S upon request.

Positive and negative pressure field checks are performed by removal contractor employees immediately prior to respirator use.

8.7 Inspection

All respirators are to be inspected before and after use by removal contractor employees. Respirators stored for emergency use only are to be inspected monthly. Inspections will cover the following:

- Condition of facepiece, connecting tubes, cartridges, and straps.
- Condition of the lens. Lenses should be free of scratches and seated tightly in retainers.
- Flexibility of all rubber parts. Deteriorated pieces should be replaced.

- Condition of all valves. Exhalation and inhalation valves are to be checked to ensure correct seating.
- On self-contained breathing apparatus (SCBA), air cylinder charges, regulators, and warning devices are to be inspected before use by individuals trained to perform these inspections. For units stored for emergency use, these inspections are to occur at least monthly.

8.8 Use, Maintenance, and Care

Employees are not assigned to tasks requiring the use of respiratory protection unless they have been determined to be physically able to wear such equipment, have been trained, and have completed a successful fit test.

Employees requiring the use of respirators must be clean shaven. Additionally, anything that interferes with the facepiece-to-face seal (i.e., glasses, long hair, skull caps, etc.) will not be permitted when respirators are required.

All respirators and cartridges are to be NIOSH/Mine Safety Health Administration approved.

Only approved replacement parts will be used in respirator repair. Maintenance on self-contained breathing apparatus will only be performed by individuals certified by the manufacturer.

Respirators assigned to and worn by one individual will be cleaned and sanitized after each use. Extreme care is to be taken during the cleaning process to prevent damage from handling.

When not in use, respirators will be stored to protect them from physical damage, sunlight, extreme temperatures, and excessive moisture.

8.9 Breathing Air

When used, breathing air will be Grade D or better according to the specifications described by the ANSI.

8.10 Air Monitoring Program

The Libby Asbestos Project Air Monitoring Program is designed to evaluate removal operations and to ensure that work practices and engineering controls are adequate for worker and public safety. Air monitoring consists of collecting personal and stationary air samples in support of interior and exterior asbestos removal activities. All samples are collected in accordance with the *Response Action Sampling and Analysis Plan for Libby Asbestos Site, Libby, Montana* (SAP) (CDM 2003b). A&E and/or its subcontractors will collect these air samples during project-related removal activities. Personal samples are collected on a task-specific basis depending upon the amount and type of removal activities to be performed. Please refer to Table 8-3 for a listing of specific removal activities and descriptions.

Table 8-3
Removal Activity Task Definitions

Work Task	Description	Respiratory Protection
Landfill	All dumping and decontamination activities	PAPR
Mine Road	Amphitheatre and Area 19 operations	PAPR
Interior Demolition	Sawing, cutting, or demolishing activities used to access contaminated material for removal	PAPR
Bulk Removal	Removal of bulk VCI material	PAPR
Detail Cleaning	Final cleaning of areas where bulk removal has been performed	Full- or ½-face
Interior Cleaning	Interior dust cleaning	Full- or ½-face
Equipment Operator	Heavy equipment operator	Full- or ½-face
Water Hose Operator	Maintains dust suppression during excavation activities	Full- or ½-face
Laborer	Supports exterior removal activities	Full- or ½-face

8.10.1 Air Sampling During Interior Removal Activities

Personal Breathing Zone Air Sampling

Personal breathing zone (BZ) air samples will be collected on removal contractor personnel conducting VCI removal to document that the level of respiratory protection is adequate for the task being conducted. All personal BZ samples will be collected in accordance with the procedures outlined in the SAP and Appendix B of OSHA Standards 29 CFR 1926.1101. Sampling frequencies for personal BZ air monitoring are established using task-based personal BZ sampling data collected from the 2002 through 2005 field construction seasons in Libby. Tasks associated with interior removal activities include demolition, bulk removal, detailing activities, and interior cleaning activities. These samples are analyzed using the laboratory analytical method NIOSH 7400 unless results warrant confirmation by transmission electron microscopy (TEM). That is, if phase contrast microscopy (PCM) results are greater than the respective time-weighted average (TWA) and excursion limits as defined by OSHA, the sample will be analyzed by TEM to confirm the presence of asbestos as specified in the SAP.

8.10.2 Air Sampling During Exterior Removal Activities

Stationary Air Sampling

During contaminated soil removal, the perimeter of the exclusion zone will be monitored for asbestos fiber migration by collecting a stationary air sample at the exclusion zone boundaries in the downwind direction. The project adheres to an EPA-directed project-specific standard that states that if 2 or more Libby Amphibole (LA) structures are detected on a perimeter monitoring event, A&E H&S and the removal contractor manager, SHSO, or site supervisor will halt removal property operations, assess site work practices, evaluate factors that contributed to the release, and modify engineering controls as necessary. Stationary air sample calibration and collection procedures will be conducted in accordance with EPA SOP 2015 - Asbestos Sampling 11/17/94 Rev. 0.0 and the SAP. Requirements for analysis of stationary air samples are outlined in OSHA Standards 40 CFR 763 Subpart E, Appendix A, with site-specific modifications detailed in applicable modification forms.

Personal BZ Air Sampling

Personal BZ air samples will be collected on removal contractor personnel conducting contaminated soil removal to document that the level of respiratory protection is adequate for the task being conducted. All personal BZ sampling will be conducted in accordance with the SAP. Sampling frequencies for personal BZ air monitoring were established using task-based personal BZ sampling data collected from the 2002 through 2005 construction field seasons in Libby. Tasks related to contaminated soil removal include water hose operator, equipment operator, and laborer.

Personal BZ air sampling will consist of collecting one TWA sample and one short-term exposure limit (STEL) (i.e., one 30-minute excursion) sample per task a minimum of every 6 months. Personal BZ air sample collection procedures will be conducted in accordance with OSHA Standards 29 CFR 1926.1101, Appendix B. These samples will be analyzed using NIOSH 7400 unless results warrant confirmation by TEM. That is, if PCM results are greater than the respective TWA and excursion limits as defined by OSHA, the sample will be analyzed by TEM to confirm the presence of asbestos as specified in the SAP.

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Section 9

Site-Specific Health and Safety Plans and Activity Hazard Analyses

SSHASPs are to be generated by the removal contractor for all Libby Asbestos Project hazardous waste sites. AHAs are to be generated by the removal contractor for each removal property and its associated work activities. A&E H&S will provide the removal contractor with the AHA form to be completed.

The SSHASP and any AHA will serve to provide health and safety information for removal contractor employees assigned to site activities. These documents will be available onsite and reviewed by each removal contractor employee before performing site activities. Documentation of this review will be kept by the removal contractor and made available to A&E H&S upon request.

The SSHASP and AHA will be prepared in accordance with the requirements of OSHA Standards 29 CFR 1910 and 1926.

A&E H&S is responsible for reviewing all removal contractor generated SSHASPs and AHAs for Libby Asbestos Project work. This review is performed to ensure that health and safety hazard potentials have been considered for all anticipated project work. No work associated with project hazardous waste sites will be performed until an acceptable SSHASP and AHA has been submitted by the removal contractor and reviewed by A&E H&S.

9.1 Removal Contractor SSHASP Requirements

The removal contractor's SSHASP shall meet the minimum applicable requirements of OSHA. The following additional responsibilities are required of each removal contractor to meet the minimum requirements of the project CSHASP:

- Deliver one copy of the removal contractor's SSHASP to Volpe for review by A&E H&S
- Ensure all removal contractor personnel have read, understood, and signed the CSHASP and the SSHASP before the start of work
- Cooperate with Volpe, A&E H&S, federal, state, and local agencies concerning relevant health and safety and property damage matters
- Participate in the implementation of fire control measures appropriate for the protection of individuals and property
- Provide training and education, and the documentation thereof, to the removal contractor's employees in the recognition, avoidance, and prevention of unsafe working conditions and work practices
- Provide training, and the documentation thereof, to the removal contractor's employees in emergency procedures

- Maintain accurate health and safety records and statistics, as required, and make available such records to A&E H&S upon request for periodic review
- A system to ensure that reports required by the CSHASP are submitted to Volpe in a timely manner
- Conduct daily work area inspections to ensure the protection of public and worker safety; any identified hazards shall be immediately corrected by the removal contractor and promptly communicated to Volpe and A&E H&S
- A system for immediately reporting all near misses, injuries, accidents, illnesses, fires, hazardous material spills, and unsafe conditions and procedures to Volpe and A&E H&S
- Toolbox meetings to be held and documented for all removal contractors' employees (documentation of the Daily Safety Meeting topics must be maintained and available for review by Volpe and A&E H&S)
- Provide appropriate first aid/medical coverage for all of its employees
- Ensure that removal contractor employees are trained on the project evacuation/emergency plans and procedures
- Adhere to the Libby Asbestos Project CSHASP and AHA policies

9.1.1 Removal Contractor SSHASP Document Requirements

The removal contractor is required to address the following elements in their SSHASP, which is to be presented to Volpe and A&E H&S.

Hazard Communication Program

The removal contractor must develop a written site-specific hazard communication program for Libby Project activities.

The written program must include the following topics:

- Requirements of the Hazard Communication Standard as defined in OSHA Standards 29 CFR 1926.59
- Establishment of a chemical inventory list
- Container labeling procedures
- Establishment of an MSDS system and training
- Hazard identification and communication for nonroutine work tasks

The removal contractor must develop a system to communicate with other project contractors and employers about known hazards associated with a particular site.

The removal contractor shall develop a training program for removal contractor employees before they work with hazardous substances and when new hazardous substances are introduced to the worksite. The training program will ensure that employees are knowledgeable of the recommended personal hygiene practices, the personal protective measures and devices required, and the emergency notification procedures to be used in the event of an accident.

Confined Space Entry Program

The goal of the Libby Asbestos Project Confined Space Entry Program is to establish an effective program that controls confined space hazards by using proper engineering controls and work practices. A&E H&S will monitor each confined space entry by the removal contractor.

A&E H&S considers all attic and crawlspace entries to be non-permit required confined space entries based on the following logic:

- These spaces are large enough and configured so employees can bodily enter and perform assigned work, the means of entry and exit are limited or restricted, and they are not designed for continuous employee occupancy.
- Existing site hazards, such as electrical LO/TO, fire protection, and other physical hazards associated with entry into a space, will be assessed as part of the site AHA, and precautions will be implemented before the space entry.
- It can be demonstrated based on historic site activities and air monitoring results that the only hazard posed by the space in question is an actual or potentially hazardous atmosphere which continuous negative air filtration is capable of addressing.

A&E H&S requires that the removal contractor evaluate all nontypical confined space entries that pose hazards not able to be addressed through continuous negative air filtration.

The removal contractor must submit a written Confined Space Entry Program that is in accordance with OSHA Standards 29 CFR 199.146 and 1926.21(6) and contains the following elements:

- Hazard identification and communication for nonroutine work tasks involving confined space entries
- Description of the equipment required for safe entry into the space in question
- Establishment of emergency procedures
- Coordination of entry operations with A&E H&S
- A Confined Space Training Program for removal contractor employees that addresses the following issues:

- Permit-required confined space hazards
- Hazards of the job site, location, or entry operation
- Proper use and limitations of PPE and other safety equipment
- The permit system and other procedural requirements
- Emergency response
- Duties and responsibilities of each member of the entry team
- Methods for alerting the attendant

Personal Protective Equipment Program

The removal contractor will include a written PPE program that is designed with the following objectives:

- To provide a reference document for any removal contractor employee with questions concerning the proper application of PPE and how to comply with applicable OSHA and project requirements
- To provide removal contractor project managers, SHSOs, competent persons, site supervisors, and field personnel with clear guidance on their responsibilities for the overall implementation of the PPE program
- To establish an employee training program that addresses the following issues:
 - When PPE is necessary
 - What PPE is necessary
 - How to properly wear and adjust PPE
 - Limitations of PPE
 - The proper care, maintenance, useful life, and disposal of PPE

Retraining is required when the following circumstances exist:

- Changes in the workplace render previous training obsolete
- Changes in the types of PPE to be used render previous training obsolete
- The employee has not retained the understanding or skill to use PPE properly

The removal contractor must verify in writing through a certification record that personnel have received and understood the training.

Refer to Section 7 of this document for task-based project PPE requirements.

Heavy Equipment Safety Program

The removal contractor will provide a written heavy equipment vehicle safety program including the following elements:

- A written heavy equipment safety policy that is developed, supported, and enforced by removal contractor management
- A heavy equipment safety program implemented by the removal contractor's project manager

- A driver and heavy equipment operator safety program, including driver training, job hazard analysis, OSHA requirements, and safety motivation
- An efficient system for accident investigation, reporting and analysis, determination and application of appropriate action, and follow-up procedures to prevent future accidents
- An equipment inspection program that provides for periodic documented inspections of all equipment in accordance with applicable federal, state, and local regulations
- A system to inspect and prevent the use of unsafe or defective equipment, tools, materials, or machinery, that includes procedures for tagging and/or lockout to render such unsafe items inoperable before work activities

Additional SSHASP Document Requirements

Additional items to be addressed by the removal contractor in its SSHASP include:

- Site control measures, including site delineation, procedures for site entry and exit, the use of a “buddy system,” site communications, site-specific safe work practices, and the identification of the nearest medical assistance
- Libby Asbestos Project equipment and personnel decontamination procedures
- A contingency plan, to be implemented in the event of injury/illness, fires, etc.
- Standard operating procedures specific to the Libby Asbestos Project
- Libby Asbestos Project excavation guidelines

9.2 Removal Contractor AHA Requirements

The removal contractor’s SHSO, site supervisor, or competent person will evaluate removal property site activities and associated hazards by completing a mandatory site-specific project AHA form for each removal property. The AHA form (Appendix A, Form L) has been prepared based on an evaluation of applicable asbestos regulations from EPA and OSHA and a review of project requirements, historical project activities, and associated hazards. The completed AHA form will be submitted to A&E H&S for review. A&E H&S will perform a full site inspection to review any issues identified in the AHA form and to ensure that the work area has been set up according to project requirements. Any issues identified during the inspection will be promptly communicated to the removal contractor’s project manager, SHSO, site supervisor, or competent person and monitored by A&E H&S to ensure that an appropriate corrective action has been implemented. Identified issues will be tracked by A&E H&S and will be discussed at the biweekly H&S meeting with EPA, Volpe, and removal contractor management.

9.3 Surveillance Policy and Procedures

Removal contractors are responsible for the enforcement of their respective SSHASP and the CSHASP. A&E H&S will provide surveillance of removal contractors' activities to observe whether such activities are in compliance with the CSHASP and the SSHASP.

9.4 Corrective Action Notification Procedures

In the event of potential violation of a health and safety standard, A&E H&S will advise the contractor of the violation and request that the violation be corrected. If there is a conflict between the CSHASP, the SSHASP, and applicable governmental regulations, the most restrictive rules shall apply.

The removal contractor will be informed of the health and safety violation by means of a verbal or written communication. Communications will be delivered by the most expeditious method to the removal contractor's project manager or SHSO.

The removal contractor shall take prompt corrective action or propose an alternate solution within an agreed upon timeframe. If corrective action is not taken within the specified timeframe, work shall stop in the respective location, and/or the affected equipment shall not be used until the situation is corrected.

Imminent Danger Notification

If A&E H&S considers a violation to be imminently dangerous to life, limb, or property, the removal contractor's representative at that location will be directed to immediately cease work in that area, and the situation will be communicated to the Volpe Center site manager. The imminent danger condition shall be corrected before work is allowed to continue.

Repeated Violations

In addition to the above notification procedures, A&E H&S will notify the removal contractor's corporate office if a particular violation is repeated or the removal contractor's SHSO, site supervisor, or competent person is not cooperative. Such notification to the contractor's corporate office may be either by telephone or in writing; however, telephone notifications will be followed up with written notification.

Repeated nonconformance with the CSHASP and the SSHASP and repeated failure to comply with correction directives may result in dismissal of removal contractor management from the project site or termination of the contract.

Section 10

Temperature Extremes

10.1 Introduction

A majority of project activities are performed in outdoor locations and, as such, employees occasionally perform these activities in elevated and depressed temperature. Therefore, it is important that all employees understand the signs and symptoms of potential injuries associated with working in temperature extremes.

10.2 Heat Stress

Heat stress occurs when the body's physiological processes fail to maintain a normal body temperature because of excessive heat. The body reacts to stress related to heat a number of different ways. The reactions range from mild (such as fatigue, irritability, anxiety, and decreased concentration) to severe (such as death). Heat related disorders are generally classified into four basic categories: heat rash, heat cramps, heat exhaustion, and heat stroke. The descriptions, symptoms, and treatment for these diseases are described as follows.

Heat Rash

Description - Heat rash is caused by continuous exposure to heat and humid air and is generally aggravated by coarse clothing. This condition decreases the ability to tolerate heat. This condition is the mildest of heat related disorders.

Symptoms - Mild red rash that is generally more prominent in areas of the body in contact with PPE.

Treatment - Decrease the amount of time in PPE and use powder to help absorb moisture.

Heat Cramps

Description - Heat cramps are caused by perspiration that is not off-set with adequate fluid intake. This condition is the first sign of a situation that can lead to heat stroke.

Symptoms - Acute, painful spasms occurring in the voluntary muscles (e.g., abdomen and extremities).

Treatment - Remove victim to a cool area and loosen clothing. Have victim drink 1 to 2 cups of water immediately and every 20 minutes thereafter until the symptoms subside. Total water consumption should be 1 to 2 gallons per day. Consult with a physician.

Heat Exhaustion

Description - Heat exhaustion is a state of very definite weakness or exhaustion caused by the loss of fluids from the body. This condition is more severe than heat cramps.

Symptoms - Pale, clammy, moist skin with profuse perspiration and extreme weakness. Body temperature is generally normal and the pulse is weak and rapid. Breathing is shallow. The victim may show signs of dizziness and may vomit.

Treatment - Remove the victim to a cool, air conditioned atmosphere. Loosen clothing and require that the victim lay in a flat position with the feet slightly elevated. Have the victim drink 1 to 2 cups of water immediately and every 20 minutes until the symptoms subside. Seek medical attention, particularly in severe situations.

Heat Stroke

Description - Heat stroke is an acute and dangerous situation. It can happen in a very short time period. The victim's temperature control system shuts down completely resulting in a rise in body core temperature to levels that can cause brain damage and can be fatal if not treated promptly and effectively.

Symptoms - Red, hot, dry skin, with no perspiring. Rapid respiration, high pulse rate, and extremely high body temperature are other symptoms.

Treatment - Cool the victim quickly. If the body temperature is not brought down fast, permanent brain damage or death can result. The victim should be soaked in cool water. Get medical attention as soon as possible.

10.2.1 Prevention Measures

There are a number of steps that can be taken to minimize and/or eliminate the potential for heat stress disorders when working in hot atmospheres. Some of these are as follows:

- Acclimate employees to working conditions by slowly increasing workloads over extended periods of time. Do not begin site work activities with the most demanding physical expenditures.
- Where possible, conduct strenuous activities during cooler portions of the day, such as early morning or early evening.
- Provide and encourage all employees to drink lots of tempered water during the course of the work shift and discourage the use of alcohol during nonworking hours. It is essential that fluids lost due to perspiration get replenished.
- During hot periods, use administrative controls to limit exposure.
- Provide cooling devices when appropriate. Mobile showers and/or hose-down facilities, powered air purifying respirators, and ice vests have all proven effective in reducing heat stress potential.

10.2.2 Heat Stress Monitoring

Strenuous field activities that are part of ongoing site work activities in hot weather must be monitored.

Temperatures reach dangerous levels during the peak of the summer, especially during attic removal activities. Administrative controls are to be implemented by removal contractors to prevent attic removal activities during peak temperature periods. The controls consist of starting earlier in the day to take advantage of lower temperatures, and removing workers from attics during the afternoon.

10.3 Cold Stress

Persons working outdoors in low temperatures, especially at or below freezing, are subject to cold stress disorders. Exposure to extreme cold for even a short period of time can cause severe injury to the body surfaces and/or profound cooling, which can lead to death. Areas of the body that have high surface area-to-volume ratios, such as fingers, toes, and ears, are the most susceptible.

There are basically two types of cold disorders. They can be classified as localized as is the case with frostbite, or generalized as in hypothermia. The descriptions, symptoms, and treatment for these diseases are described as follows.

Hypothermia

Description - As the temperature of the body drops, the thermo-regulatory system attempts to increase the body's generation of heat. This regulation includes the constriction of surface blood vessels, to conserve energy, and the body's production of glucose, to increase the body's metabolic rate, i.e., to be used as fuel to generate heat.

Symptoms - Uncontrollable shivering with the sensation of cold. Slower heartbeat and a weaker pulse are also symptoms.

Treatment - Get individual to a warm environment.

Frostbite

Description - Frostbite is a condition in which the fluids around the cells of body tissues freezes. The condition results in damage to and loss of tissue. The most vulnerable parts of the body are the nose, cheeks, ears, fingers, and toes.

Symptoms - Affected areas become white and firm.

Treatment - Get the individual to a warm environment and rewarm the areas quickly. Keep affected areas covered and warm. Warm water can be used to thaw the areas.

10.3.1 Preventive Measures

There are a number of steps that can be taken to minimize/eliminate the potential for cold stress disorders when working in a cold environment. Some of these are as follows:

- As with warm environments, individuals can achieve a certain degree of acclimation when working in cold environments. The body will undergo some changes that will increase the body's comfort and also reduce the risk to cold injury.
- Working in cold environments causes significant water losses through the skin and the lungs as a result of the dryness of the air. Increased fluid intake is essential to prevent dehydration, which effects the flow of blood to the extremities and increases the risk of cold injury. Warm, sweet, caffeine-free, nonalcoholic drinks and soups should be readily available.
- Do not allow skin to be continuously exposed to sub-zero temperatures.

10.3.2 Cold Stress Monitoring

Air temperature alone is not sufficient to judge the potential for cold-related disorders in a particular environment. Heat loss from convection, air movement at the surface of the skin, is probably the greatest and most deceptive factor in the loss of body heat. For this reason, wind speeds as well as air temperatures need to be considered when evaluating a potential for cold stress disorders. The resultant windchill index and the potential danger to exposed individuals have been tabulated as shown in Table 10-1.

Table 10-1
Windchill Index

Wind Speed in mph	Actual Thermometer Reading (°F)									
	50	40	30	20	10	0	-10	-20	-30	-40
	Equivalent Temperature									
Calm	50	40	30	20	10	0	-10	-20	-30	-40
5	48	37	27	16	6	-5	-15	-26	-36	-47
10	40	28	16	4	-9	-21	-33	-46	-58	-70
15	36	22	9	-5	-18	-36	-45	-58	-72	-85
20	32	18	4	-10	-25	-39	-53	-67	-82	-96
25	30	16	0	-15	-29	-44	-59	-74	-88	-104
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116
Over 40 mph (little added effect)	Little Danger (for properly clothed person)				Increasing Danger (Danger from freezing of exposed parts)			Great Danger (Danger from freezing of exposed parts)		

The human body senses "cold" as a result of both air temperature and wind velocity. Cooling of exposed flesh increases rapidly as the wind velocity goes up. Frostbite can occur at relatively mild temperatures if wind penetrated the body insulation. For example, when the actual air temperature of the wind is 4.4 degrees Celsius (°C) (40°F) and its velocity is 48 km/h (30 mph), the exposed skin would perceive this situation as a equivalent still air temperature of -11°C (13°F).

Section 11

References

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Occupational Safety and Health Administration. Title 29 Code of Federal Regulations Parts 1910 and 1926.

_____. Title 40 Code of Federal Regulations 763 Subpart E, Appendix A – *Interim Transmission Electron Microscopy Analytical Methods – Mandatory and Non-Mandatory – and Mandatory Section to Determine Completion of Response Action*.

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Appendix A

Forms

Libby Site Injury/Illness Report

Information about Injured, Ill, or Involved Employee:

First Name: _____ Middle Initial: _____

Last Name: _____

SSN: _____ Sex: ____ Age: _____

Employee Number: _____

Employee Status: ☐ Contractor ☐ Subcontractor

Name of Subcontractor Firm: _____

Address and Phone No.: _____

Employment Category:

- ☐ Regular Full time
- ☐ Regular Part time
- ☐ Temporary
- ☐ Non-employee

Length of Employment:

- ☐ In training ☐ 3-5 years
- ☐ <6 months ☐ 5-10 years
- ☐ 6 mos-1 yr ☐ 10-20 years
- ☐ 1-3 years ☐ 20+ years

Time in Occupation:

- ☐ In training ☐ 3-5 years
- ☐ <6 months ☐ 5-10 years
- ☐ 6 mos-1 yr ☐ 10-20 years
- ☐ 1-3 years ☐ 20+ years

Information about Accident/Injury/Illness:

Date of Accident: _____ Time: _____

Specific Location of Accident: _____

Witness(es) to the Accident/Injury: _____

Employee's Usual Occupation: _____

Occupation at Time of Accident: _____

Supervisor: _____

Injury or Illness? ☐ Injury ☐ Illness

Property Damage? ☐ Yes ☐ No

Vehicle Involved? ☐ Yes ☐ No

Injury/Illness Severity:

- ☐ First Aid Only
- ☐ Medical Treatment
- ☐ Lost Workdays - Restricted Activity
- ☐ Lost Workdays - Away from Work
- ☐ Fatality Date: _____
- ☐ Total Number of Lost Days: _____

OSHA Illness Code:

- ☐ Occupational Skin Diseases or Disorders
- ☐ Dust Diseases of the Lungs
- ☐ Respiratory Conditions Due to Toxic Agents
- ☐ Poisoning
- ☐ Disorders Due to Physical Agents
- ☐ Disorders Associated with Repeated Trauma
- ☐ All other Occupational Illnesses

Phase of Employee's Workday at Time of Injury:

- ☐ Performing Work Duties
- ☐ During Meals
- ☐ During Rest Period
- ☐ Entering or Leaving Workplace
- ☐ Other _____

General Type of Task Being Performed at Time of Injury/Illness: _____

Specific Activity Being Performed at Time of Injury/Illness: _____

Employee Was Working:

- ☐ Alone
- ☐ With a Crew or Fellow Worker
- ☐ Other
- Crew size: _____

Supervision at Time of Accident:

- ☐ Directly Supervised
- ☐ Indirectly Supervised
- ☐ Not Supervised
- ☐ Supervision Not Feasible

Name, Address, and Phone Number of Attending Physician: _____

Name and Address of Hospital: _____

Body Part Affected (circle all that are applicable):

Abdomen	Ear	Head	Multiple	Thigh
Ankle	Elbow	Heart	Musc. Skel.	Toe
Arm	Eye	Hips	Neck	Wrist
Back	Face	Kidneys, Intest.	Nervous Sys.	Other _____
Brain	Finger	Knee	Scalp	Unknown
Chest	Foot	Leg	Shoulder	
Digestive	Hand	Lungs	Skull	

Injury Type (circle all that are applicable):

Amputation	Contusion	Elec. Shock	Heat Stroke	Poisoning
Asphyxia	Crush/Bruise	Fracture	Infect. Disease	Radiation
Burn/Chemical	Cut/Puncture	Freezing	Inflammation	Scratch
Burn/Heat	Dermatitis	Hearing Loss	Multiple	Sprain/Strain
Concussion	Dislocation	Hernia	Occ. Disease	Other _____
				Unknown

Injury Source (circle all that are applicable):

Air Pressure	Clothing	Heat	Noise	Soaps
Animals	Coal/Petroleum	Hoists	Paper	Silica
Animal Product	Cold	Infectious	Particles	Scrap/Debris
Body Motion	Drugs &	Agents	Plants	Steam
Boilers	Medicines	Ladders	Plastics	Textiles
Boxes/	Electricity	Liquids	Power Tools	Vehicles/
Containers	Fire/Smoke	Machines	Power Trans.	Forklifts
Buildings/	Food Products	Molten Metal	Apparatus	Wood
Structures	Furniture	Miner/Metallic	Pumps	Working Surfaces
Ceramics	Glass	Minerals/	Radiating	Other _____
Chemicals	Hand Tool	Nonmetallic	Substances	Unknown

Accident Type Code (circle all that are applicable):

Struck Against	Fall on Same	Rub/Abrasion	Temp. Extremes	Motor Vehicle
Struck By	Level	Bodily Reaction	Radiations/	Other _____
Fall From	Caught In/	Overexertion	Caustics	Unknown
Elevation	Between	Electrocution	Public Transport	

Hazardous Conditions (circle all that are applicable):

Defects in Dress/Apparel	Inadequately	Placement Hazards	Other _____
Environmental Hazards	Guarded Work	Public Hazards	Unknown
Hazardous Procedures	Environment	None	

Accident Part Code (circle all that are applicable):

Parts of Boilers	Parts of Conveyors	Hand Tools	Parts of Vehicles	None
Parts of Buildings	Parts of Hoists	Power Tools	Machines	
Other _____				

Description of Accident: _____

Possible Causes of Accident/Injury/Illness:

Place a check in the box of each factor that applies to this incident.

EQUIPMENT - Was a Hazardous Condition a Contributing Factor?

- ☐ Defect in Equipment/Tools
- ☐ Hazardous Condition Not Recognized
- ☐ Hazardous Condition Not Reported
- ☐ Employee Not Informed/Job Procedure Not Specified
- ☐ No Equipment Inspection Procedure
- ☐ Inspection Procedure Failed to Detect Hazard
- ☐ Correct Equipment/Tools Not Used
- ☐ Correct Equipment Not Available
- ☐ Employee Not Informed of Correct Equipment
- ☐ Substitute Equipment
- ☐ Equipment Design Contributed to Operator Stress/Error
- ☐ Design/Quality of Tool Contributed to Hazardous Condition
- ☐ Other/Unknown _____

ENVIRONMENT - Was the Location/Position of Equipment, Materials, or Employee a Contributing Factor?

- ☐ Location/Position Contributed to a Hazardous Condition
- ☐ Hazardous Condition Not Recognized
- ☐ Hazardous Condition Not Reported

- ☐ Employee Not Informed of Correct Job Procedure for Hazard
- ☐ Employee Did Not Belong in the Area
- ☐ Hazardous Condition Not Visible to Employee
- ☐ Insufficient Workspace
- ☐ Poor Environmental Control
- ☐ Uncontrolled Release of Hazardous Material
- ☐ Other/Unknown _____

PEOPLE - Was the Job Procedure(s) a Contributing Factor?

- ☐ Aggravation of a Pre-existing Condition
- ☐ No Written/Known Procedure
- ☐ Job Procedure Inadequate
- ☐ Employee Not Trained on Proper Job Procedure
- ☐ Employee Deviated from Proper Job Procedure
- ☐ Employee Not Physically/Mentally Capable of Performing Job
- ☐ Job Procedure Too Difficult
- ☐ Job Procedure Encourages Deviation
- ☐ Other/Unknown _____

PERSONAL PROTECTIVE EQUIPMENT

- ☐ Employee not using PPE
- ☐ PPE Not Specified for Task
- ☐ PPE Unavailable
- ☐ Employee Not Advised of PPE
- ☐ Employee Not Properly Trained in PPE
- ☐ PPE Used Incorrectly
- ☐ PPE Inadequate
- ☐ Emergency Equipment Not Specified (Shower, Eyewash, Etc.)
- ☐ Emergency Equipment Not Available
- ☐ Emergency Equipment Not Used
- ☐ Emergency Equipment Malfunctioned
- ☐ Other/Unknown _____

MANAGEMENT - Was a Management Defect a Contributing Factor?

- ☐ Supervisor Failed to Detect/Anticipate/Report Hazardous Condition
- ☐ Supervisor Failed to Detect/Correct Deviations from Job Procedure
- ☐ No Supervisor Review of Hazards and Job Procedures
- ☐ Supervisor Responsibility Not Defined/Understood
- ☐ Supervisor Not Trained in Accident Prevention
- ☐ Failure to Initiate Corrective Action for Known Hazard
- ☐ Other/Unknown _____

OCCUPATIONAL HEALTH - Was a Physical or Chemical Agent a Contributing Factor?

Physical Agent:

- ☐ Noise, Vibration
- ☐ Temperature Extremes
- ☐ Ionizing Radiation - X, Gamma, Beta, or Alpha Radiation
- ☐ Non-ionizing Radiation - Microwave, Laser, Ultraviolet, or Radio Frequency
- ☐ Ergonomic - Repetitive Motion Trauma, Inappropriate Lighting, Glare, Incorrect or Insufficient Tooling, Benches, Seating

Chemical Agent:

- | | |
|--|-------------------------|
| <input type="checkbox"/> Solvents | Solvent Name _____ |
| <input type="checkbox"/> Acid, Bases | Acid or Base Name _____ |
| <input type="checkbox"/> Particulates | Particulate Name _____ |
| <input type="checkbox"/> Other Toxic Chemicals | Chemical Name _____ |

Biological Agent:

- | | |
|--|----------------------|
| <input type="checkbox"/> Microorganism | Microorganism _____ |
| <input type="checkbox"/> Insect | Insect's Name _____ |
| <input type="checkbox"/> Animal | Animal Species _____ |
| <input type="checkbox"/> Allergens | Allergen Name _____ |

CORRECTIVE ACTION REQUIRED: _____

Signatures:

Immediate Supervisor	_____	Date	_____
H&S Coordinator	_____	Date	_____
Performance Center Mgr.	_____	Date	_____
Corp. H&S Director	_____	Date	_____

For Office Use Only:

Case Numbers of Others Injured, Ill, or Involved in the Same Accident:

Case No.:	OSHA Recordable? <input type="checkbox"/> Yes <input type="checkbox"/> No
Region:	Address:
Project No.:	Accident or Diagnosis Date:

Photos Relating to Accident/Injury

(Make copies of this page as necessary.)

Insert photos here.

Witness Statement

(Make copies of this page as necessary.)

Name: _____

Employer: _____

Address: _____

Position/Craft: _____

Phone: _____

This statement is in reference to: _____

Site of accident (job name, location): _____

Date of accident: _____

Describe what you know about the accident, what you saw or heard, what you were doing before the accident, what you did after the accident (Use additional pages as necessary):

[illegible]

This statement is true to the best of my knowledge and memory.

Signature _____

Date_____

**Libby Site
Employee Meeting Record**

Date: _____
Time: _____

Project No. or Office Location: _____
Instructor: _____

Duration of Training: _____

Topics Discussed: _____

Printed Name	Employee Number	Signature

Libby Site Site-Specific Training Record

Presenter: _____

Date: _____

Job Number: _____

Location: _____

Training Topic: _____

Employee Name

Employee Signature

Employee ID Number

Libby Site Hot Work Permit

Project Name: _____
Date Written: _____

Project Number: _____
Date of Expiration: _____

NOTE: Read instructions on reverse side before completing this permit.

Type of Hot Work:

☐ Internal Combustion Engines ☐ Hot Tapping ☐ Sparking
☐ Work on Live Equipment ☐ Welding/Burning ☐ Other

Scope of Work: _____

What equipment preparation is required? (i.e., lockout/tagout, blinding pipes) _____

Is any area clean-up required? _____ Explain: _____

Is work area ventilation required? _____ What Type? _____

Is fire equipment required? _____ What Type? _____

What methods are to be employed to control sparks? _____

What type of firewatch is required, if any? _____

What periodic air/gas testing is required? _____

What continuous air/gas testing is required? _____

What instruments are required? _____

Where should the continuous air monitor(s) be placed? _____

What PPE is required? _____

Who must be notified each time work commences? _____

Special Instructions: _____

Signatures:

Site Supervisor _____

Site Safety Officer _____

Client Representative (if required) _____

Hot Work will occur by permit only and is considered to be any of the following:

1. Use of internal combustion engines (gasoline or diesel).
2. Use of powered tools that produce sparks in drilling, grinding, chipping, etc.
3. Any high temperature work such as welding, burning, soldering, stress relieving, and use of open flames.
4. Work on live equipment (requires supplemental documentation - see supervisor) involving any high temperature work done on equipment still in operation or known to contain flammable material.
5. Hot Tap (requires supplemental documentation - see supervisor) involving cutting into a piece of equipment known to contain flammable material.

A written permit, prepared and signed by authorized individuals, must be issued prior to any hot work in any area not specifically designated as a "free burning area."

Abbreviated Areas

The site project manager or his designee will arrange via the Hot Work Permit to:

1. Ensure the work is necessary and can be done safely.
2. Determine the period in which the permit is valid.
3. Specify which type(s) of hot work is approved.
4. Describe exact work to be done and by whom.
5. Prepare equipment and/or area for work. Verify all requirements have been satisfied before issuing the permit.
6. Isolate equipment when required.
7. Clear area of combustible/flammable material (50-ft. radius, minimum).
8. Specify fire protection and equipment necessary for the work.
9. Specify if additional methods or equipment is necessary to control sparks (fire blanket, water sprays, etc.)
10. Specify duties of the firewatch, if firewatch is mandated.
11. Specify and perform types of air/gas tests that are required initially, continually and/or periodically. At a minimum, tests shall be performed for explosive gases and oxygen levels. If levels of combustible gases exceed 20 percent of the LEL or if levels of oxygen exceed 25 percent, work shall stop immediately.
12. Determine number and placement of continuous air/gas monitors where necessary.
13. Identify the authorized person to approve hot work startup.
14. Secure appropriate signatures.
15. Distribute, post, and file necessary copies of the permit and gas test results.

Refer to 29 CFR 1926.350-354 for complete procedures.

Libby Site Trench/Excavation Permit

Contractor(s): _____ Date work will start: _____

Competent person: _____ Date work will end: _____

Specific location and description of work: _____

Sketch of location attached? ☐ Yes ☐ No

Size of trench or excavation: _____ Depth _____ Length _____ Width _____

Soil type: ☐ Type A ☐ Type B ☐ Type C ☐ Solid Bedrock

Lines in vicinity of work:

☐ Electrical ☐ Steam ☐ Telephone ☐ Water ☐ Sewer ☐ Alarm

☐ Drain ☐ Process ☐ Other: _____

Other known obstructions:

☐ Footings ☐ Pilings ☐ Concrete Encasements ☐ Other: _____

Precautions to be taken:

☐ Ground Tools ☐ Hand Excavate ☐ Insulate Operator ☐ De-energize lines

Protective System:

☐ Sloping ☐ Shoring ☐ Benching

The above data have been checked with blueprint data on file. When close clearances are indicated, hand excavation must be used to determine the exact location. Existing lines and interference in the vicinity of work must be marked.

Contractor's Signature

Competent Person's Signature

Libby Site Confined Space Entry Permit

Date: _____

Permit Number: _____

Permit Expiration Date/Time: _____

District/Location: _____

Department: _____

Confined Space to be Entered: _____

Description of Work to be Performed: _____

Nature of Hazards in Confined Space: (check)

- ☐ Oxygen deficiency (less than 19.5% at sea level)
- ☐ Flammable gases or vapors (greater than 10% of the lower flammable limit or greater than 23.5% oxygen at sea level)
- ☐ Toxic gases or vapors (greater than the permissible exposure limit)
- ☐ Mechanical hazards
- ☐ Electrical shock
- ☐ Materials harmful to the skin
- ☐ Engulfment
- ☐ Other _____

Pre-Entry Preparation: (check)

- ☐ Notify affected departments of service interruption
- ☐ Isolate - blanked or double valve, with lock and tag
- ☐ Energy sources neutralized
- ☐ Cleaned, drained, washed, and purged
- ☐ Ventilation to provide fresh air
- ☐ Emergency response team available
- ☐ Employees informed of specific confined space hazards
- ☐ Operating and rescue procedures reviewed and available to each employee
- ☐ Atmospheric Test in compliance
- ☐ Attach hot work permit
- ☐ Other _____

Equipment Required for Entry and Work: (check)

- ☐ Respirator
- ☐ Lifeline and safety harness
- ☐ Protective clothing
- ☐ Hearing protection
- ☐ Other _____

Electrical Equipment/Tools:

- ☐ Low voltage
- ☐ Ground-fault current interrupters
- ☐ Approved for hazardous locations

Respiratory protection (specify) _____

Communication aid (specify) _____

Rescue equipment (specify) _____

Authorized Entrants:

Authorized Attendants:

Problems Encountered:

Atmospheric Monitoring:

Test	Acceptable Limit	Check if Required	Results	Results	Results	Results	Results	Results
			Time:	Time:	Time:	Time:	Time	Time:
Oxygen - min.	19.5%							
Oxygen - max.	22.0%							
Flammability	10% LEL							
H ₂ S	10 ppm							
Toxic:								
SO ₂	0.2 ppm							
Heat								
Other:								
Other:								

Name of employee conducting atmospheric monitoring: _____

Entry Supervisor Authorization:

I certify that all required precautions have been taken and necessary equipment is provided for safe entry and work in this confined space.

Name: _____ Signature: _____ Date: _____ Time: _____

Reviewer Name (print): _____ Reviewer Signature: _____

Libby Asbestos Project Activity Hazard Analysis

Address: _____ Date: _____ Contractor: _____

Expected Work Activities	Applicable*	Comments
Interior Demolition (PAPR)		
Interior Bulk Removal (PAPR)		
Interior Cleaning (1/2 Face)		
Crawlspace (1/2 Face)		
Exterior Demolition (PAPR)		
Exterior Removal (1/2 Face)		

Competent Person Coverage	Applicable*	Comments
General Inspections		
Electrical		
Scaffolding		
Fall Protection		
Excavation		
Ladders		
Asbestos and Material Handling		

Public Protection	Applicable*	Comments
Traffic Control Signage		
Safe Equipment Placement		
Utilities Located and Marked		
Work Areas Properly Defined		
Open Excavations Protected		
Spill Kit Present		

Site Safety	Applicable*	Comments
3-Stage Decontamination		
Potable Water Present		
Modified Level C in use		
Dirty Bus in use		
GFCI use		
Hearing Protection		
Slip Trips and Falls		
Controlled Ingress/Egress		
Fire Protection		
Temperature Extremes		
Electrical and HVAC LOTO		
Poisonous or Biting Insects		

* - space is used to designate whether or not a particular category applies to site removal activities
X - category applies to site removal activities **NA** - does not apply to site removal activities

EZ - exclusion zone
GFCI - ground fault circuit interrupter
HVAC - heating, ventilation, and air conditioning
LOTO - lockout/tagout
PAPR - powered air purifying respirator
POCV - point of cut ventilated equipment required for demolition operations

Industrial Truck	Applicable*	Comments
Operator Training		
Daily Maintenance Records		
In-line Safety Valve Utilized		
Operator in Communication to EZ		
EZ Vac Safety Features		
Vac Box and Hoses Properly Sealed		

Interior Removal	Applicable*	Comments
Attic Access > 18"x18"		
Neg Air Properly Set Up		
Criticals Sealed		
Haz Zones Delineated		
Waste Load Out Delineated		
Dust Suppression		
Haz Materials Present		

Interior Demolition	Applicable*	Comments
POCV Demo Tools in use		
Appropriate Dust Suppression		
Proper Work Practices		
Housekeeping Maintained		
Appropriate Material Handling		
Sufficient Neg Air		

Exterior Removal	Applicable*	Comments
Work Area Delineated		
EZ Delineated		
Load Out Area Delineated		
Adequate Dust Suppression		
Poly Loading Sheet		

Heavy Equipment	Applicable*	Comments
Haul Trucks Tarped		
Back-Up Alarm Functional		
Leakproof Bed		
Positive Pressure Cab		

Competent Person Signature

Signature is acknowledgement that the competent person has reviewed the site setup and expected removal activities and found them to be in compliance with project requirements.

Libby Site Medical Authorization Form

Employee: _____

Type of Exam: _____ Date of Exam: _____

The individual identified above has completed a medical surveillance examination. Review of the data from this examination resulted in the following conclusions:

Medical and Safety Restrictions

Medical and Safety Recommendations

Appraisal of Lifting Capacity

Clearance for Work with Hazardous Materials

In compliance with 29 CFR 1910.120 (f), medical clearance ☐ is ☐ is not issued for individual to work with hazardous materials.

Use of Respiratory Equipment

In compliance with 29 CFR 1910.134, medical clearance ☐ is ☐ is not issued for unrestricted use of respiratory protective equipment.

Exposure to Temperature Extremes

Exposures to temperature extremes ☐ are ☐ are not acceptable providing that reasonable precautions are taken.

Physician's Signature: _____ Date: _____

Libby Site Request for Medical Records

This document authorizes Contractor to obtain copies of my medical records from:

Physician Name: _____

Address: _____

City: _____

State, Zip: _____

I understand that no X-rays will be sent as part of this record. I also understand that there is no charge for this service, and the records requested will be mailed within 15 days of receipt of this request.

(Please Print)

Employee Name: _____

Social Security No.: _____

Employee No.: _____

Division/Office: _____

Signature: _____

Date: _____

Employee Signature Authorizes Release

Libby Site Respirator Training Documentation Form

Employee Name: _____ Division/Office: _____

Your signature on this Respirator Training Record will attest to your having received and understood the basic respirator training program, which Occupational Safety and Health Administration (OSHA) requires as a part of their Respiratory Protection Standard.

The basic respirator training program consists of the following items:

- An explanation of the problems involved with misuse of the respirator
- A discussion of why this engineering control could not be used effectively and, as a result, why respiratory protection is required
- How and why this particular respirator was chosen for this specific job
- The limitations of the respirator selected
- How to put on the respirator and adjust the facepiece and tension straps properly
- The essential points of the care and maintenance program
- How to recognize and handle emergencies
- How to inspect the respirator
- When to use an air purifying respirator
- When a supplied-air respirator is required
- The purpose of the medical evaluation
- A powered air purifying respirator (PAPR) is available to you upon request, as long as it meets the protection factor for the hazard involved

Signature: _____ Date: _____

Respirator Test Summary

Name: _____ Division/Office: _____

Date of Testing: _____ Test Conducted By: _____

Respirator Selected: Manufacturer: _____

Model: _____

Respirator Size: _____ MSHA/NIOSH Approval No.: _____

Type(s) of Test Conducted: _____
(Irritant Smoke, Isoamyl Acetate, etc.)

Testing Agent(s) Used: _____

Signature of Person Conducting Test: _____

MEDICAL EMERGENCY PROCEDURES

In the event of a medical emergency, the following general procedures should be followed:

1. For an emergency in the Exclusion Zone, **DO NOT MOVE PATIENT.**
2. Assess the situation and move the patient **ONLY** if a fire or IDLH situation exists.
3. Call 911 and notify them of potential asbestos contamination.*
4. Call Emergency Contacts below to report emergency.

*If medical condition is life threatening, secure medical treatment ASAP.

EMERGENCY CONTACTS

ER Office – 406-293-2082

Vince Parker cell – 406-283-1749

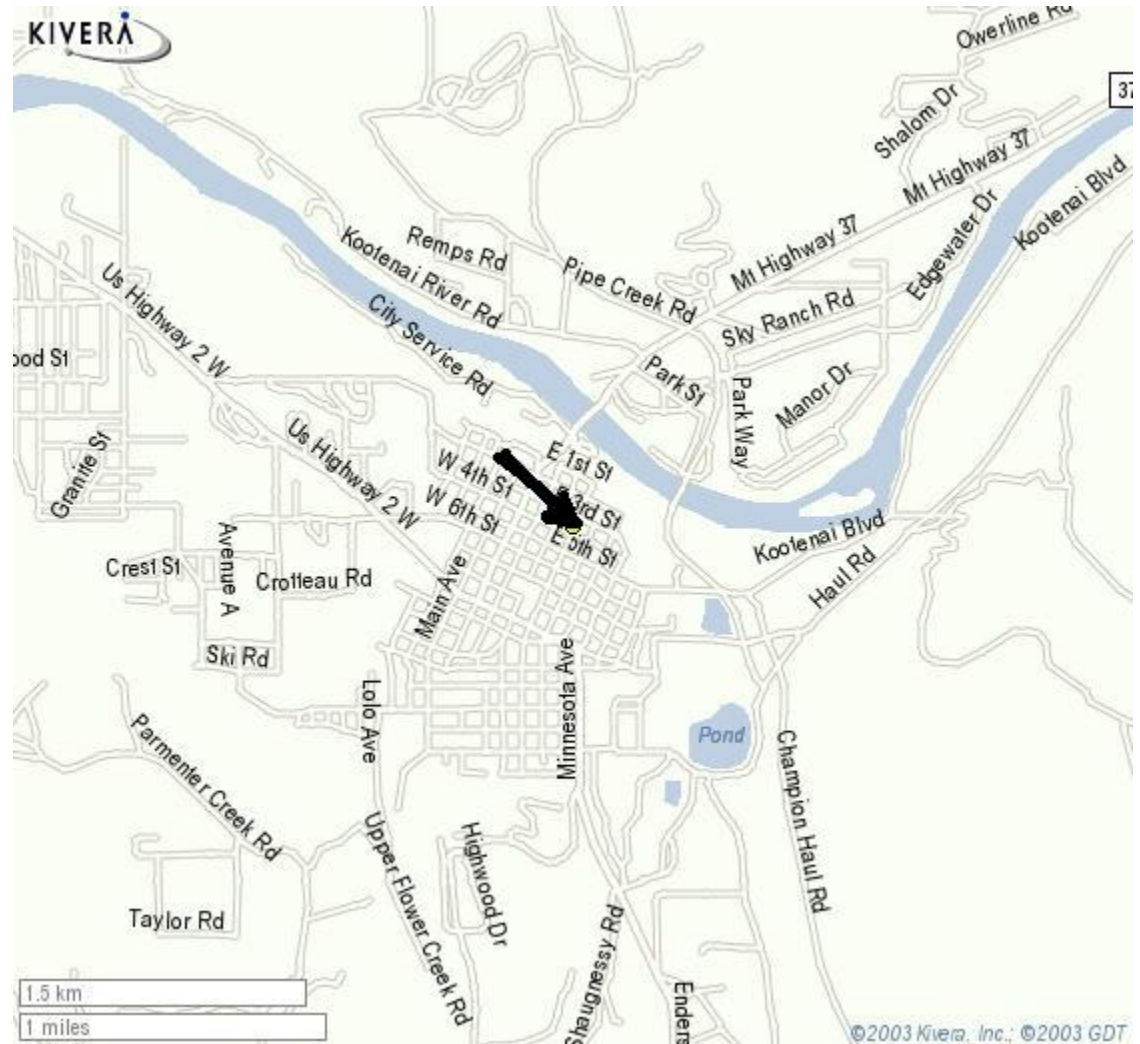
EPA Office – 406-293-6194

Mike Cirian cell – 406-202-3791

CDM Office – 406-293-8595

Shawn Oliveira cell – 406-293-1547

Damon Repine cell – 406-293-1374



ST. JOHNS LUTHERAN HOSPITAL Phone: 406-293-0100
350 Louisiana Ave, Libby, MT 59923

Libby Asbestos Project: Competent Person Designation Form

Removal contractors are required to submit to Volpe, as part of the SSHASP, a Designation of Competent Person Form that designates a competent person for each area listed. The forms must be maintained by the removal contractor's Project Manager, as well as the A&E H&S manager for tracking purposes.

The removal contractor's competent person is responsible for performing the pre- and final-work site inspection and completion of the AHA form, as well as performing regular and frequent site inspections to ensure that the activities are performed in compliance with the CSHASP and SSHASP. Please refer to the following table for a listing of all topic areas that require competent person designation according to OSHA.

Category	OSHA Standards 29 CFR References to a Competent Person
General Inspections	1926.20(b)(2)
Material Handling	1926.251(a)
Welding	1926.354(a)
Scaffolding	1926.451(f)(7), 1926.454(b)
Fall Protection	1926.502* 1926.503(a)(2)
Crane	1926.550*, 1926.552(c)(15)
Excavation	1926.651*, 1926.652*, Subpart P App A,B
Demolition	1926.850(a), 1926.852(c), 1926.859
Ladders	1926.1053(b), 1926.1060(a)(1)
Asbestos	1926.1101*

* Multiple references within this section

Removal Contractor (RC) _____

Competent Person _____

Category/Categories _____

RC Project Manager _____

A&E H&S Manager _____

Date _____

Appendix B

Health and Safety Audit Criteria

Appendix B

Health and Safety Audit Criteria

The purpose of the health and safety audit is to provide “leading indicators” to verify field compliance with health and safety practices and procedures and feed this information back to improve field practices on all construction projects.

1.0 Methodology

Field auditors will audit general practices and procedures using these specific criteria.

- Whenever possible, auditors shall be accompanied by health and safety personnel assigned to the specific area being audited.
- Feedback will be given to health and safety field personnel in a timely fashion. (If a serious problem is noted, the information will be relayed to a health and safety coordinator immediately).
- Whenever possible, audits will note the subcontractor performing the work.
- Observations sheets will be scored and data accumulated for a particular general practice or procedure.
- Results of the audits will be fed back to the appropriate personnel or subcontractor to achieve timely and consistent improvement in a general practice or procedure.

2.0 Audit Criteria

Specific criteria for each of the general practices/procedures to be audited can be found on the attached sheets. These specific criteria outline areas field auditors should be focusing on in the field and are the basis for determining if an observation is in or out of compliance.

- | | |
|---------------------------------|---|
| ■ Fall protection | ■ Confined space |
| ■ Personal protective equipment | ■ Lockout/tagout and electrical hot work |
| ■ Ladder and lift use | ■ Electrical (e.g., grounding)/fire protection and hot work |
| ■ Hazardous materials | ■ Scaffolding |

2.1 Fall Protection Audit Criteria

- A “fall protection system” is used whenever work is being performed at a height above 6 feet. The feet of a worker comprise the point of measurement for the 6-foot rule.
- Fall protection may be accomplished by use of the following systems:
 - Ladders, lift units, and scaffolding qualify as fall protection as long as the body of the worker remains in the plane of the equipment/structure and the equipment/structure is properly set up and secured.
 - Guardrails, static lines, anchor points, nets, and vertical lines must be properly located, constructed, and anchored. Documentation is required for static line installations.
 - Personal protective equipment, including lanyards and full body harnesses, is approved and in good condition.
- Positive fall protection is effectively used to ensure that no more than 6 feet of free-fall can occur. An example of where more than 6 feet of free-fall can occur is when a worker “walks out” their retractable lanyard farther than 6 feet.

Exception: When working within the plane of a properly installed ladder, fall protection is not required.

- Work practices:
 - Lanyards are not looped
 - Ends of rebar are capped where impalement cannot occur (below 5 feet)

2.2 Personal Protective Equipment Audit Criteria

Eye Protection:

- Safety glasses or goggles meeting ANSI Z87.1 standard must be worn in all construction zones.
- Sideshields shall be fixed and meet ANSI Z87.1 requirements.
- High eye injury potential work (e.g., welding, grinding, cutting brick or steel) requires additional eye and face protection such as a face shield or welder's goggles.

Foot Protection:

- Work boots must meet ANSI Z41.1 requirement.
- Leather boots reaching above the ankles are required in construction zones.
- Rubber boots are acceptable for concrete work only.

Head Protection:

- Approved hard hats are required in the construction zone (ANSI Z89.1).
- Hard hats may not be worn backwards.

Hand Protection:

- Heavy gloves are worn when handling materials that present a cut hazard.

2.3 Ladder and Lift Audit Criteria

Ladders:

- Commercial grade ladders only, with exception of wood gang ladders.
- Structural defects are repaired immediately or "DO NOT USE" label attached conspicuously.
- Secured against accidental movement by:
 - Access ladders tied off
 - Set on a stable base
 - Set at safe climbing angle: 4:1 ratio or 70 degrees
 - Worker retains three points of contact with ladder
 - Tools and equipment are not carried while climbing
 - Body remains in plane of ladder
 - Top two rungs not used
- Gang ladders shall not be used to access areas higher than 20 feet.

Forklifts:

- Platforms are approved and secured to unit
- Operator remains at controls

Manbaskets and Cranes:

- Critical Lift Plan has been filed with contractor
- Annual crane inspection available
- Daily maintenance logs

Aerial Lifts:

- Personnel are trained and authorized
- Equipment is in good operating condition (no leaks, operation is smooth)
- Travel is in lowered position when possible or overhead obstructions are taken into account
- Load is under maximum rating
- Guardrails and toeboards in place and used; gate secured
- Platform height not extended through use of ladders, platforms, planks, or other devices

- Full body harness and lanyard used (boom-extended lifts only)
- Fueling performed with engine off
- Battery recharge occurs in clean, well ventilated, flame-free area
- Housekeeping on platforms adequate to prevent slips and falls and material falling on workers below

2.4 Hazardous Materials Audit Criteria

Storage:

- Materials are stored in approved areas and within secondary containment. (Exceptions are granted for pending use materials of low environmental toxicity (latex paint) upon the discretion of the contractor site health and safety officer.)
- Incompatible materials are separated.
- Leaks and drips are not apparent.
- A responsible individual is identified on signage in each major area.

Use:

- Workers are using appropriate personal protective equipment.
- Engineering controls (ventilation) or administrative controls are implemented where necessary.
- Lids and caps are secured on containers when not in immediate use.
- Leaks and drips are not apparent.

Training, Labeling, and Material Safety Data Sheets (MSDSs):

- All containers are clearly labeled for contents and hazards.
- MSDSs are onsite or at the subcontractor's office area.
- Workers have attended the contractor hazcom/environmental training class.
- "No Smoking" signs are posted and observed around flammable and combustible materials.

2.5 Confined Space Audit Criteria

- Confined spaces, including manholes, tanks, rooms under construction, excavations, etc., have been evaluated and classified as permit or non-permit required.
- A confined space entry plan form has been completed and is current.
- When chemicals are planned for use as part of the entry, the contractor project manager has approved and signed approval.
- Lockout/tagout procedures are used where required, and a double valve system is used to protect workers in the confined space.
- Confined spaces are signed as such indicating "Danger" and "Entry by Permission Only."

2.6 Lockout/Tagout and Electrical Hot Work Audit Criteria

- Any system posing a risk of a hazardous energy (e.g., electrical, hydraulic, chemical, pneumatic, mechanical) shall be locked out and tagged before maintenance, servicing, adjusting, cleaning or additional construction.
- A contractor lockout/tagout plan has been completed and is current for work being performed.
- Subcontractors are following a lockout/tagout procedure that is written and compliant and at least as stringent as the contractor's plan.
- Locks and tags remain on the lockout device until the job is completely finished and all potential of the release of hazardous energy is removed.
- One lock and tag per worker working on the job is installed on the lockout device. Each lock is under the exclusive control of a worker, and tags are identified with the worker's name and date of work.

2.7 Electrical/Fire Protection and Hot Work Audit Criteria

Electrical:

- Maintenance of electrical equipment shall be achieved in one of two of the following ways:
 - 1) Through the use of an assured equipment grounding program. Tested equipment shall be color coded as follows:

White	January through March
Green	April through June
Red	July through September
Orange	October through December
 - 2) Through the use of ground fault circuit interrupters (GFCIs).
 - Defective equipment shall be tagged and removed from service.
 - Only construction-grade extension cords are used.
 - Cords are strung overhead.

Fire Protection and Hot Work:

- Fire extinguishers are provided throughout the area and locally in specific hot work areas.
- A current hot work permit has been issued and posted.
- A fire watch is being performed if so required by the permit.
- Combustible and flammable materials do not provide fuel to a potential fire.
- Welding shields are in place.

2.8 Scaffolding Audit Criteria

- A scaffold plan has been filled out for any scaffolding exceeding 20 feet, and a contractor health and safety staff person shall approve all scaffolding before use.
- Scaffolding is constructed on firm and level ground.
 - Adequate sills and base plates are provided.
- Scaffold use is greater than 10 feet from power lines.
 - The contractor project manager for the area has approved use by multiple subcontractors and each subcontractor inspects scaffold before use.
- A competent person performs daily inspections on scaffolds.
 - Damaged equipment is tagged and put out of use.
- Access ladders should not exceed 20 feet without a break.
- Cross braces shall not be used for climbing.
- Suspension scaffolds require an independent safety line for each employee who shall wear a full-body harness.
- Planks, guardrails, and toeboards are installed in compliance with OSHA requirements and in good condition.
- Loads do not exceed ratings (light use 25 lb/sq. ft.; medium 50 lb/sq. ft.; and heavy 75 lb/sq. ft.).
- Scaffolds are braced at appropriate ratios (4:1 for metal, 3:1 for aluminum).
- Tower scaffolds will not exceed four times the smallest base dimension.
- Scaffolding will be secured to structures every 30 feet horizontally and every 26 feet vertically.
- Personnel shall not ride rolling scaffolds.